Technical Report 1238

Nonverbal Communication in the Contemporary Operating Environment

Mark Yager, Beret Strong, and Linda Roan
eCrossCulture Corporation

David Matsumoto
San Francisco State University

Kimberly A. Metcalf
U.S. Army Research Institute

January 2009

United States Army Research Institute
For the Behavioral and Social Sciences

U.S. Army Research Institute for the Behavioral and Social Sciences

A Directorate of the Department of the Army Deputy Chief of Staff, G1

Authorized and approved for distribution:

BARBARA A. BLACK, Ph.D
Research Program Manager
Training and Leader Development

MICHELLE SAMS, Ph.D.
Director

Research accomplished under contract
For the Department of the Army

eCrossCulture Corporation

Technical review by

Allison Abbe, U.S. Army Research Institute
Sharon Riedel, U.S. Army Research Institute

NOTICES

DISTRIBUTION: Primary distribution of this Technical Report has been made by ARI. Please address correspondence concerning distribution of reports to: U.S. Army Research Institute for the Behavioral and Social Sciences, Attn: DAPC-ARI-MS, 2511 Jefferson Davis Highway, Arlington, Virginia 22202-3926.

FINAL DISPOSITION: This Technical Report may be destroyed when it is no longer needed. Please do not return it to the U.S. Army Research Institute for the Behavioral and Social Sciences.

NOTE: The findings in this Technical Report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

REPORT DOCUMENTATION PAGE

1. REPORT DATE (dd-mm-yy)	2. REPORT TYPE	3. DATES COVERED (from. . . to)
January 2009	Final	September 2007 – February 2008

4. TITLE AND SUBTITLE	5a. CONTRACT OR GRANT NUMBER
Nonverbal Communication in the Contemporary Operating Environment	W91WAW-07-P-0458
	5b. PROGRAM ELEMENT NUMBER 622785
6. AUTHOR(S) Mark Yager, Beret Strong, and Linda Roan (eCrossCulture Corporation); David Matsumoto (San Francisco State University); Kimberly A. Metcalf (U.S. Army Research Institute)	5c. PROJECT NUMBER A790
	5d. TASK NUMBER 333
	5e. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) eCrossCulture Corporation 777 29th Street, Suite 202 Boulder, CO 80303 San Francisco State University 1600 Holloway Avenue San Francisco, CA 94132	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Research Institute for the Behavioral and Social Sciences 851 McClellan Avenue Fort Leavenworth, KS 66027-1360	10. MONITOR ACRONYM ARI-FLRU
	11. MONITOR REPORT NUMBER Technical Report 1238

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES
Contracting Officer's Representative and Subject Matter POC: Dr. Kimberly Metcalf

14. ABSTRACT *(Maximum 200 words)*:

Nonverbal behavior (NVB) is a key part of communication, arguably accounting for considerably more of the communicative message than that contained in verbal exchanges. This is especially true when a language barrier exists, as it does for many Soldiers stationed overseas. Universal and culture-specific NVB knowledge, skills, and attitudes (propensity) enable Soldiers to better identify opportunities to influence individuals, groups, and situations, especially when seeking cooperation or needing to identify friendly vs. hostile intent. The goal of the training proposed herein is to prepare Soldiers to predict and interpret nonverbal behavior. To develop the training framework, a literature review, a preliminary emblem extraction effort, and SME interviews and surveys were conducted. Competencies identified in NVB training include relevant attention and observation skills; cognitive processes to baseline people and scenes to develop expectancies of normative states and detect changes to a baseline; and knowledge of NVB functions and cues relevant to specific applications such as aggression and deception detection. This report describes a conceptual framework for teaching specific NVB concepts and cues designed to provide maximum benefit to Soldiers and makes specific recommendations about how such a curriculum may be taught.

15. SUBJECT TERMS
nonverbal communication, nonverbal behaviors, cultural training, cross-cultural skills, cultural understanding

SECURITY CLASSIFICATION OF			19. LIMITATION OF ABSTRACT	20. NUMBER OF PAGES	21. RESPONSIBLE PERSON
16. REPORT	17. ABSTRACT	18. THIS PAGE			
Unclassified	Unclassified	Unclassified	Unlimited		Diane Hadjiosif Technical Publications Specialist 703-602-8047

Technical Report 1238

Nonverbal Communication in the Contemporary Operating Environment

Mark Yager, Beret Strong, and Linda Roan
eCrossCulture Corporation

David Matsumoto
San Francisco State University

Kimberly A. Metcalf
U.S. Army Research Institute

Fort Leavenworth Research Unit (Leader Development)
Stanley M. Halpin, Chief

U.S. Army Research Institute for the Behavioral and Social Sciences
2511 Jefferson Davis Highway, Arlington, Virginia 22202-3926

January 2009

Army Project Number
622785.A790

Personnel, Performance and Training Technology

NONVERBAL COMMUNICATION IN THE CONTEMPORARY OPERATING ENVIRONMENT

EXECUTIVE SUMMARY

Research Requirement:

The contemporary operating environment often requires Soldiers to have direct involvement with civilians, foreign militaries, nongovernmental agencies and others from the host nation. Furthermore due to a lack of training resources, time and the difficulty of learning certain languages a Soldier may not reach a high level of language proficiency before being deployed therefore possibly limiting his effectiveness in cross-cultural interactions. A time and cost alternative is to train Soldiers how to accurately decode universal and cultural specific instances of nonverbal behavior. Teaching nonverbal decoding skills is often less difficult than language learning, may help to improve Soldiers' interpersonal skills and safety, and as seen in specific interactions, like a negotiation context, being able to accurately interpret an individual's nonverbal behavior is often more important than the actual spoken words. The goal of this research was to develop a nonverbal behavior training curriculum to improve Army Soldiers' interpersonal interactions with individuals from other cultures.

Procedure:

The research emphasis of this effort focused on identifying the reliability and validity of NV cues, especially in cross-cultural settings, the determination of universal and culture-specific NVB cues, and the identification of cues that could provide Soldiers with maximum benefits in terms of safety, communication, and mission success. A pilot emblem extraction investigation was performed across several culture groups to demonstrate the feasibility of selected extraction techniques. In addition, thirty-nine Soldiers of various ranks provided information about their experience of NVB in Iraq and Afghanistan, their perception of the need for and utility of NVB knowledge, skills, and training, and their impressions of how well they could decode host national NVB. Two NVB SMEs were also interviewed. The report details a method for teaching the decoding of nonverbal behavior using observations of valid cues and functions based on an extensive literature review as well as interviews with NVB experts and Soldiers.

Findings:

The literature survey and iterative interviews with two NVB SMEs led to the following conclusions: Facial expressions of emotion are the one set of NVB cues that are universal, reliable, and validated by cross-cultural research. Emblematic gestures are universal and validated in terms of function (i.e., cultures all over the world use them), but the cues themselves are predominantly culture-specific. Most experimental NVB research has been conducted with an American population, and so it is problematic to conclude universality definitely exists in relation to cues other than those related to facial

expressions of emotion. At the same time, researchers believe there is some degree of universality in the temporal aspect of speech production (e.g., pause frequency, hesitation, fluency), the function of cultural display rules (whose form will be culture-specific), the use of gestures to illustrate speech and perform other communicative functions, body postures indicating emotion (though with culture-specific manifestations), and certain reflex movements (such as squinting in bright light or turning away from offensive odors). It should be noted that universality and cultural specificity are not antithetical terms. A NVB cue can be universal, with modest differences in expression across cultures. This is true of facial expressions of emotion where differences are mainly due to display rule differences. Cues that are most likely to be misinterpreted are any cues culturally unfamiliar to the decoder.

The report includes a discussion of a broad literature review related to NVB, survey and interviews with Soldiers, and a proposed seven-module teaching curriculum of cross-cultural interpretive NVB skill sets to increase decoding accuracy. The literature review and SME and Soldier interviews initially focused broadly on understanding NVB as a field and then on identifying Army-relevant NVB. NVB SMEs identified which NVB cues would provide greatest benefit to Soldiers, and Soldiers themselves identified their specific questions, confusions, and needs in regard to cross-cultural NVB. In light of this research, the following teachable NVB areas became the focus of research and proposed curriculum: facial expressions of emotion, gestures, validation and reliability, and skills related to baselining, scene scanning, change detection, aggression detection, deception detection, and cues decodable at a distance of over 20 feet. The proposed curriculum is designed to effectively improve NVB KSAs in interpersonal contexts globally whether or not the Soldier has received culture training to increase country-specific cultural knowledge.

Utilization and Dissemination of Findings:

The information summarized in this report suggests that training in universal and cross-cultural NVB can be a significant benefit to Soldiers in cross-cultural environments. Further, intercultural NVB decoding needs to incorporate both general and culture-specific components. Surveyed Soldiers concur that NVB decoding skills are of considerable relevance to Army missions and that improvement of decoding skills will aid mission success and possibly save lives. Literature review and interviews suggest that formal training will increase decoding accuracy and reduce in-country experience needed in informal settings.

NONVERBAL COMMUNCIATION IN THE CONTEMPORARY OPERATING ENVIRONMENT

CONTENTS

INTRODUCTION

While most people think of social communication as facilitated by language, nonverbal behavior (NVB) communicates as much and often more information than spoken language. Though each mode of communication has been studied independently of the other, verbal and nonverbal communications often occur simultaneously and create complex, nuanced meaning. Communication and information transfer can and does occur whether a nonverbal message is generated intentionally or unintentionally. In fact, a great deal of nonverbal behavior is automatic, occurs unconsciously, and is innate, based in the biology of humans and other primates (Ellyson & Dovidio, 1985). Other nonverbal behaviors are learned behaviors or represent a mixture of learned and innate traits. Although the degree to which an interpersonal message conveyed by NVB varies, Birdwhistell claimed that 65% of a message is represented nonverbally and Hall claimed that fully 90% is nonverbal (Birdwhistell, 1970; Hall, 1984), NVB is a key component of social communication, as the meaning of a message may be conveyed nonverbally or verbally or in combination.

Nonverbal behavior affects everyone every day, but people are often unaware of its impact. Surprisingly, in situations where the stakes are especially high, *individuals tune in to the words being spoken and ignore nonverbal information that would help them more fully understand the message*, even though the vast majority of information is transmitted nonverbally (Ekman, Friesen, O'Sullivan, & Scherer, 1980). When the relative contributions of the various NVB channels are compared to one other, in *normal conversation* the nonverbal is often more important in terms of the message. In high stakes deception detection scenarios, this is often reversed, with the verbal channel being perceived as more important. Further, misreading NVB cues is more likely to occur in cross-cultural contexts because some nonverbal cues are culture-specific and will not be understood by someone without culture-specific knowledge. In some military situations, this lack of knowledge can have disastrous consequences. An example is the use of emblems, which are gestures made with a hand or both hands that can be translated easily into words and replace those words altogether. Simple examples include the gestures for "stop," "go," and "come here". Emblems are culture-specific and generally must be learned region by region.

The current emphasis on Stability, Security, Transition, and Reconstruction (SSTR) and counterinsurgency operations often places Soldiers in close, interpersonal contact with host national civilians, coalition partners and other governmental agencies. Many operations emphasize establishing rapport and discerning intent in close proximity to friendly and possibly dangerous individuals. Unfortunately, the typical American Soldier may not only be dealing with unfamiliar, non-Western environments, but may have little to no facility with the local language and may be reliant on interpreters for accurate communication. A plethora of military anecdotal evidence supports the importance of interpreting NVB in these settings. Consider the following story related by an Army civil affairs officer in Afghanistan.

> *One of the more effective tactics the bad guys use is spreading around some rumors…and word had gotten spread … that Americans are going to come to your village and they're going to look in your houses and they're going to want to see your women … they're*

going to … intrude on the sanctity of your home…. This was a civil engagement visit, no security, but they were under the impression we were going to kick in doors.

So, we had picked up a local Afghan police officer. [He] right away did not seem as jovial or in as good a mood as normal. When you picked up an officer out of the small hut… normally they were very happy … and it also made them kind of stand-up a little higher in their comrades' eyes… This guy was quite the opposite.… He was not very enthusiastic, he was looking around quite a bit, he seemed nervous, he wasn't trying to talk with anyone, he wasn't trying to do anything other than see where we were.... This was the first time I'd seen him…. Somehow he knew something was up and as we got closer to the village, his nervousness increased and without anyone mentioning it, he said, "Maybe we should stop outside and I will go in alone and see if the village elder or anyone is there." The senior NCO in charge said, "No, we're going in and you can come with us if you want."

We got right to the edge of the center of the village and stopped. Right away we noticed it was not like our usual appearance in the village where it was kind of like the circus rolling into town, everybody coming out to look, kids, all the adult males that were around usually wanting to come and see. There were very few children, none of the younger ones, it was 10 and up, not very many of them, they didn't get very close, they weren't very friendly, they weren't asking for something, they were very different, very closed up, quiet – which is also very unusual – a number of young men came up, stayed in small groups, very huddled, a lot of arms clenched up, hunched up shoulders instead of the usual joking around, talking, goofing around with each other, checking us out… So we knew something was up from the actions of the police officer and the absence of the younger kids and such… (eCrossCulture interview archive)

The Soldier continued to relate how the situation deteriorated dangerously and, under death threats, they left. This particular vignette demonstrates how Army Soldiers possibly avoided a lethal confrontation by successfully interpreting NVB. Similar anecdotes can be found in numerous types of missions and in many U.S. and foreign conflicts where a Soldier reports that "*something wasn't quite right*" often based on interpreting NVB. A common thread in many Soldiers' stories is that good NVB interpretive skills are often the result of extensive experience, either through emotional maturity or through time in-theatre. The training described here seeks to develop skills: 1) to decode specific NVB and 2) to establish an NVB baseline and recognize changes in NVB.

This report describes the background and importance of decoding nonverbal cues and outlines a training tool for decoding:

- facial expressions of emotions, including: emotions that people don't attempt to modify, "leaked" emotions, and masked emotions;
- universal and culture-specific NVB;
- gestures, especially emblematic gestures that have precise meanings; and
- group dynamics, dominance, deception, and aggression.

This report presents an extensive literature review on NVB research relevant to military decoding needs, methodology and the results of SME interviews and/or surveys and a preliminary cross-cultural emblem extraction research effort. It also proposes a nonverbal communication training curriculum to teach knowledge, skills, and aptitude in regard to NVB use in military contexts. While many KSAs relevant to NVB are proposed in order to give Soldiers an understanding of NVB and its uses, the emphasis is on decoding nonverbal cues cross-culturally.

The training described here seeks to develop skills: 1) to decode specific NVB and 2) to establish an NVB baseline and recognize changes in NVB. This training strategy is an improvement over other methods of culture-specific NVB training which may provide a form of sophisticated stereotyping by simply noting the differences between American and another culture's NVB. Such training may not reveal what an individual might do and in fact can lead to incorrect NVB decoding with possibly dangerous consequences.

ISSUES IN NVB: LITERATURE REVIEW AND SME INTERVIEWS

An objective of Phase I was to examine the literature on nonverbal behaviors in the context of three questions:

1. Which nonverbal behaviors are reliable and valid and which are likely to be misinterpreted in cross-cultural settings?
2. Which nonverbal behaviors are universal and which are culture-specific?
3. Which NVB cues and functions provide Soldiers with maximum benefits in terms of safety, communication, and mission success? (For cues and functions that should be taught, see Nonverbal Communication Training Curriculum and Appendix D later in this report).

Questions 1 and 2 were addressed through a comprehensive literature review. Emphasis was given to peer-reviewed literature and validated research. Question 3 was addressed through literature review, Subject Matter Expert interviews, and surveys and interviews with nearly forty Soldiers. (For the NVB Decoding Needs Assessment, see Appendix A. For the NVB Decoding Survey Results, see Appendix B). Based on the literature review, there appears to be a common acceptance of nomenclature for terms used in this document. The literature review method involved broad reading in concepts and in validated experimental research within the NVB field. Special attention was paid to noting the populations studied in the experimental literature in order to address issues of universality and cross-cultural validity of theories and actual production and recognition of NVB cues. Iterative interviews were performed over a period of months with two internationally respected NVB experts, Dr. David Matsumoto, Director of the Ekman Group a nonverbal behavior research and training organization, and Dr. Ronald Rensink of the University of British Columbia. Drs. Matsumoto and Rensink have complementary areas of expertise, and were instrumental in guiding this effort.

The scientific literature and NVB experts agree on many aspects of what NVB is and how it is discussed. Nonverbal cues are actual nonverbal behaviors, such as paralanguage/vocalics, facial expressions, touch, chronemics (use of time), proxemics (use of interpersonal space), and so forth. Cues can also include things not always considered to be "behaviors" but which are

nonetheless NVB cues, such as clothing, facial hair, and items used to obscure or hide people or objects. Channels are the sensory means through which nonverbal cues are imparted, including sight, sound, touch, and smells.

The messages conveyed by nonverbal behavior may include emotion signaling, emblematic information, speech illustration, and conversation regulation (Ekman & Friesen, 1969b). More broadly, the functions and goals of NVB include such things as gaining trust, establishing safety, assessing credibility, obtaining information, and establishing and improving rapport.

NVB occurs in various contexts, including individual face-to-face interactions, observations at a distance, groups interactions, and so forth. NVB cues are even present over the telephone in the form of vocalics.

Encoding NVB means creating and expressing a cue; decoding is receiving the cue. In the context of training Army Soldiers, decoding also means interpreting or otherwise understanding the meaning of the cue. This meaning may be intentional or unintentional, automatic or planned.

Reliable, Valid, and Misinterpreted Nonverbal Cues

A comprehensive literature review was undertaken to answer the question "*Which nonverbal behaviors are reliable and valid and which are likely to be misinterpreted in cross-cultural settings?"* An examination of what is meant by reliable and valid NVB cues is discussed in the next section.

Reliability refers to the consistency of a measurement, the degree to which an instrument or methodology measures the same way each time the measurement is taken under a defined, consistent set of circumstances (Anastasi, 1986; Anastasi & Urbina, 2006). In the context of NVB, reliability should be established through research and can be achieved through documentation of an adequate number of people from one country consistently judging a given NVB cue. For instance, to be considered reliable, an emblem (a hand gesture whose meaning can easily be expressed in few words) that means "stop" in Iraq would need to have a high degree of agreement among Iraqis as to its form and meaning.

A group of people may reliably identify a gesture as having a certain meaning, but may still be wrong in their interpretation. Their identification may be reliable and consistent, but not valid or accurate. Validity involves measuring what one is supposed to measure so that one measures accurately, not just (as with reliability) consistently (getting the same results over and over). A poorly designed experiment can produce reliable results that are invalid or false. Validity of a theory or experiment is more likely to exist in the case of sound experimental design, replicability of results, and other scientific measures.

The concepts of reliability and validity are important to experimental research in NVB in part because of the dearth of validated NVB research efforts, especially in cross-cultural contexts. It is possible to find numerous accounts of so-called reliable cues that may in fact be based on anecdotal accounts or popular consensus, but are not validated by scientific research. An

excellent example involves the interpretation of deception cues, as research has demonstrated that what people believe across a vast number of cultures to be accurate deception-related NVB cues are in fact not valid (Vrij, 2004; Anderson, DePaulo, Ansfield, Tickle, & Green, 1999). Therefore, when teaching Soldiers how to accurately decode NVB cues in a cross-cultural context, it is important that the validity and reliability of the cues included in the training are established. Teaching Soldiers cues based on a few observers' experiences or anecdotal information may lead to misunderstandings between Soldiers and host nationals.

Also, most NVB experimental research has been conducted within the United States. These results are useful to provide context for the discussions herein, but only with the caveat that the findings may not be reliable or valid outside of this country. Therefore, unless otherwise specified, the research findings discussed within this report pertain only to the U.S. and should be considered invalid overseas until proven otherwise. However, facial expressions of emotion are an exception and have been shown to be universally recognized.

The answer to the question of which NVB cues are most likely to be misinterpreted is that cues from a culture unfamiliar to the decoder are most likely to be misinterpreted (Elfenbein, 2006; Elfenbein & Ambady, 2003). Universal cues affected by differences in physiognomy, facial hair, and clothing, may also be misinterpreted (Ekman, 1979; Hess & Philippot,, 2007). Emblems are usually misinterpreted when they differ from the Soldier's own emblem repertoire or look similar to emblems in that repertoire but have different meanings (Manusov & Patterson, 2006). In addition, culture-specific management of emotional facial displays can confuse Soldiers. Given that the majority of cues are not universal in form, there is great potential for misinterpretation, and for Soldiers believing they have decoded the nonverbal cue correctly when in fact they have not. It is important therefore that training emphasizes and utilizes reliable and valid cues.

Universal Nonverbal Cues

A comprehensive literature review, focusing on validated experimental findings, reveals most researchers agree there are universal nonverbal cues, especially facial expressions of emotion. Universality, as theorized by Darwin and many more contemporary theorists in what came to be known as the "universality studies", suggests that "emotions and their expressions had evolved across species, were evolutionarily adaptive, biologically innate,and universal across all human and even nonhuman primates (Manusov & Patternson, 2006, p. 222). Collectively, the findings of Ekman, Friesen, Sorenson, and Matsumoto demonstrate the "existence of six universal expressions – anger, disgust, fear, happiness, sadness, and surprise – as judges around the world agreed on what emotion was portrayed in the faces" (Manusov & Patterson, p. 222). (For an annotated list of universality investigations spanning several decades and include a range of cultures, see Manusov & Patterson, p. 223-24.) There may be modest cultural differences in the expression (encoding) or interpretation (decoding) of a cue. One important question is: how do we know which NVB carry the same basic meaning across cultures and can therefore be universally interpreted? According to Ekman, "If the requirement is that every country must be studied, and every sub-culture in every country, then no-one could ever establish that anything is universal" (Ekman, in Dalgleish & Power, n.p., 1999). On the other hand, if there is high concordance about the meaning and function of a NVB cue in 21 different countries, including

ten non-Western countries, can we conclude universality? As Brown (1991) argued, "[A]ll statements of universality are hypotheses or arguments based on various limited kinds of evidence" (Brown, in Dalgleish & Power, n.p.). For the purposes of this report, we define NVB "universality" as cues that are experimentally validated and recognized by a vast majority of NVB researchers and scholars as existing and being recognized in all cultures where such cues have been studied and are believed to have a high likelihood of existing in all cultures of the world.

The facial expression of emotion is the only group of cues currently recognized by a majority of researchers and experts as being both universally recognized and valid (Ekman, in Dalgleish & Power, 1999). The seven universal facial expressions of emotion are fear, anger, happiness, sadness, disgust, surprise, and contempt. To help explain emotion's apparent universality, emotion has been defined as "transient, bio-psycho-social reactions designed to aid individuals in adapting to and coping with events that have immediate implications for their well being" (Matsumoto, Keltner, Shiota, Frank, & O'Sullivan, in press, n.p.) and as such contains both biological and cultural components. Emotion recognition helps people understand how others are responding to them and to stimuli affecting a pair or a group of people. For instance, the expression of fear can warn others of threat or danger, and anger can serve as a warning sign of impending interpersonal conflict. Being able to successfully decode expressions of emotion helps with the core functions of safety and survival, not to mention interpersonal communication and regulation of social relationships.

How has the universality of the facial expression of emotion been studied? In a investigation by Ekman (1972), even the pre-literate people of Papua New Guinea experienced and identified six of Ekman's core emotions (contempt had yet to be confirmed). Later evidence of the universal recognition of contempt was obtained across countries in many regions of the world (Ekman & Friesen, 1986). Ekman's work followed in the tradition of that of Charles Darwin. In *The Expression of the Emotions in Man and Animals* (1872), Darwin expressed the belief that the same core emotions were expressed by the faces of people in Africa, Asia, Oceania, and the Americas. Though Darwin's scientific methodology was inadequate by today's standards a great deal of validating research has followed.

Further evidence for the biologically innate origins of universality in both expression production and recognition comes from several sources. The facial expressions considered to be universal among humans have been observed in nonhuman primates (de Waal, 2003). Chimpanzees have a fully functional facial musculature that, while not as differentiated as that of humans, includes the same muscles that are used in emotional expressions (Bard, 2003; Burrows, Waller, Parr, & Bonar, 2006). The additional facial muscles for humans may be related to speech, speech illustration, conversation regulation, and the ability to eat while talking (Ekman & Friesen, 1969b). Moreover, the chimpanzee facial musculature produces many of the same appearance changes in the face as does the human musculature, according to a comparison of the human and chimpanzee versions of the Facial Action Coding System (Vick, Waller, Parr, Pasqualini, & Bard, 2007).

Recent evidence has found further evidence for the universality of emotion. Boucher and Carlson (1980) conducted experiments that revealed accurate identification of American and

Malaysian facial expressions of emotion by American and Malaysian participant judges. Malaysians accurately identified expressions with a free-choice response test as well as with a limited-response test, and that Temuan aborigines accurately judged American facial expressions of emotion (Boucher & Carlson). Based upon the findings reviewed above, we believe there is a universal biologically-based emotion- expression linkage.

The primary dissent from the universalist perspective is evidence provided by judgment studies (Russell, 1994; 1995). Judgment studies involve showing observers stimuli portraying facial expressions and are then asked to judge what emotion is depicted in the face. Universality is demonstrated by high agreement within and across different cultures about the portrayed emotion. Russell sought to cast doubt on investigations with forced choice formats and posed expressions, and objected to generalizing from limited cross-cultural results. However a recent meta-analysis by Elfenbein and Ambady (2002b) examined these issues and found the degree of accurate cross-cultural recognition of emotion across a great number of research efforts with different design formats pointed to emotions being "universal and likely biological." They added their analyses "also present evidence, however, that emotional expressions may lose some of their meaning across cultural boundaries" (Elfenbein & Ambady, p. 228). As recognized in the Elfenbein and Ambady quote a set of cues can be universal (appear in all cultures in the world) and have some cultural specificity as well, and therefore the universal and culture-specific distinction is not a dichotomy or binary division. The degree and significance of cultural specificity in any given set of cues is a subject for ongoing research across many cultures and nonverbal cues.

For example, some facial emotions have stronger universal recognition than others and, for some facial emotions people from one country may label it differently than people from another. Happiness and anger are more easily decoded around the world than are disgust and contempt. Fear is sometimes confused with surprise, and anger with disgust. Universality does not mean that a cue will be decoded the same way all of the time by all peoples of the world. It does mean that scholars and researchers have validated, by means of judgment, production, and other experimental efforts, that specific nonverbal cues are produced and accurately decoded by most experimental participants in countries around the world.

There are various influences on the decoding of facial expressions of emotion, including influences from the encoder (message sender) and the decoder (message recipient). Encoder influences include display rules, facial physiognomies, styles of dress, facial hair, head coverings, and jewelry or other ornaments (e.g., glasses). As mentioned, these factors can alter the appearance of the face and thus affect decoding. Decoder influences include cultural decoding rules and perceptual and interpretational biases. The training program will address both kinds of influences.

Current research is exploring whether non-facial emotion expression cues can be universally recognized. Research findings indicate that emotions can be identified from the static postures of virtual humans (Shaarani & Romano, n.d.). Kleinsmith, De Silva, and Bianchi-Berthouze (2006) used computer avatars to cross-culturally test emotion recognition and intensity portrayed only by the avatars' postures. The test groups for the cross-cultural research effort were Japanese, Sri Lankan, and American participants. All correctly identified the emotions portrayed by the

postures. However, cultural differences emerged in intensity ratings, with Japanese participants rating the intensity of the emotion as being stronger than did Americans or Sri Lankans. Research on body movement kinematics (e.g., the movement aspects of speed, acceleration, and displacement) also shows that emotion – and especially anger and anxiety – can be recognized from subtle postural movements (Gross, Gerstner, Koditschek, Fredrickson, & Crane, n.d.). Based on this work the interpretation of motion cues may potentially be a very useful source of NVB information for Soldiers.

Another instance of NVB universality is in the temporal aspect of speech production, in particular the frequency of pauses and hesitations versus the fluency of people's speech patterns (Aboudan & Beattie, 1996). Speech sometimes becomes less fluent when speakers are feeling unsure or hesitant. In addition, hand gestures and speech patterns sometimes fluctuate in relation to each other. For instance, the use of hand gestures during speech increases universally during fluent speech and decreases with hesitant speech, revealing a speech-gesture connection in the psychological processes of speech production. As Aboudan and Beattie concluded, "The observation that gestures and speech are intimately linked in terms of the planning of language can be generalized across language groups as a universal characteristic of the gestural aspect of human behavior" (p. 292).

In summary, universal NVB has been linked by experimental research most heavily to the facial expression of emotion. In addition, research suggests there is a degree of universality in body postures and movements, speech patterns, and hand gestures. Research is ongoing as to what meaning – especially emotional meaning – can be extracted from body postures and movement, speech and vocalics, and hand gestures. For the Army, training Soldiers to have greater awareness of nonverbal cues, and to use their training and experience to mine those cues for possible meaning, is an important goal. The single most useful set of nonverbal cues for Soldiers are emotional facial expressions, as they reveal what another person is feeling and are often difficult to mask. A face portraying both anger mixed with disgust has been linked to impending loss of self control and is potentially crucial information for a Soldier.

Culture-Specific Issues

To address the question of which nonverbal cues are culture-specific, we begin by addressing more fully the question of the cultural component of facial expression of emotion. This *cultural component* may appear in the form of display rules that may influence people to modify their expression and interpretation of facial emotion cues based on what they have learned is socially appropriate in their country (Matsumoto, Yoo, Hirayama, & Petrova, 2005). Display rules can be used either consciously or used without conscious awareness or intention by an individual. Ekman and Friesen (1969b, 1975) outlined six ways cultural display rules may affect emotional expression once an emotion is aroused: *no inhibitions* (emotion expressed just as it is), *amplifying, deamplifying, neutralizing, qualifying, or masking*. For instance, Americans may amplify their emotional expression for emphasis or other dramatic effect, while Japanese may moderate their expressions (Matsumoto, 1992). People can also simulate emotions, producing an expression of emotion that is contrary to the underlying emotion.

Whereas display rules govern the expression of emotion, decoding rules affect how an emotion is perceived (Buck, 1984; Matsumoto & Ekman, 1989). When decoding facial emotion cues, Americans may assume the cue is exaggerated and thus downplay the degree of emotion associated with it. Japanese individuals may assume the emotion is being controlled by display rules and gauge it as more powerful than the facial expression would suggest (Matsumoto & Ekman, 1989). Schimmack (1996) determined Caucasian judges decode culturally diverse facial expressions of emotion more accurately than non-Caucasians and this effect may be due to cultural differences in display rules. The effect may also be influenced by acculturation, the influence of one culture on another, including Caucasian cultures' access to images of people from diverse cultures. It may be that familiarity with the expressions of people of other cultural backgrounds (Elfenbein, 2006), ease of the task, or other variables associated with acculturation produce differences in recognition abilities. In other words, familiarity with a broad range of cues – especially across cultural borders – may help decoders when they encounter unfamiliar cues. Individuals who have undergone training in cross-cultural NVB may therefore be at a distinct advantage.

Research has demonstrated both cultural similarities and differences in the representation of emotion cross-culturally and in general self-expression (Shaver, Wu & Schwartz, in Clark, 1996). Noesjirwan (1978) observed that Australians and Indonesians differ in their responses to hypothetical situations in ways that reveal very different emotional and communicative behavior. For instance, Indonesians may hide their disagreement with others in a group setting and instead "smile and agree" in this context while Australians typically voice their disagreement. When angry at a boss, Indonesians will hide their feelings and Australians will express their anger (Noesjirwan, p. 310). Noesjirwan found that Indonesians subordinate the individual to the community and Australians do the opposite. More specifically, more Indonesians agreed with the statement, "The individual should serve the community." while in contrast, most Australians agreed with the statement, "The individual is more important than the community" (Noesjirwan, p. 312). Another investigation revealed Americans are more emotionally expressive and use more hand gestures than do Canadians (Waxer, 1985). Lastly, Gilbert and Krull (2002) and Chen (1995) experimentally found that American participants generally disclose more personal information about themselves than Chinese participants.

Cultural differences within nations have also been documented. Matsumoto (1993) examined the display rule attitudes, affect intensity, emotion judgments and self-reports of emotional expression for four ethnic groups within the U.S. He found considerable differences in these indices as a function of ethnicity. For instance, African-Americans "perceived greater intensity when judging emotions, and reported a greater frequency of anger expressions, than did the other ethnic groups" (Matsumoto, p. 118). In contrast, Asian-Americans had lower emotion intensity judgments, probably a consequence of their cultural display rules. The reaction of Caucasian Americans fell somewhere in between that of the two groups. The investigations mentioned above are merely a sampling of the work that exists on discrete validated instances of cross-cultural differences in emotion expression and other NVBs. They are mentioned here to illustrate the fact that universality and some degree of cultural specificity or cultural influence can and do co-exist simultaneously. All peoples express core emotions, but they may do so with small, cultural variations.

Researchers have shown that people in all cultures use gestures to communicate. The use of gestures is thus universal. However, specific gestures very often differ from one culture to another, much the way languages and cultural norms differ. With facial expressions of emotion, both cues and function are universal while with emblems the function is universal, but cues are not. Some cultures share some emblems, but many cultures have unique emblems. For example, the Arab world shares certain NVB cues, such as prayer and sincerity gestures, but individual emblems may vary by Arab nation and should be confirmed experimentally nation by nation and, in some cases, ethnic/religious group by ethnic/religious group. (For more information about Arab NVB, see Appendix C, pg. C-1). Differences in emblems may be related to how different peoples express an idea. For instance, an emblem indicating a representation of suicide might involve an index finger pointed at one's temple in one culture and yet take a different form in a different culture.

Gestures have long been seen as intimately connected to cognition and emotion. As Sherrington observed in 1940, "the hand of man possesses mind by proxy" (as cited in Scott & Charteris, 1986, p. 754). Hand gestures can express intention, illustrate or accompany spoken words or sounds, leak emotion, communicate culture, or signal in the absence of language (Scott & Charteris). In addition, cultural differences in gesture abound. Anthropologist Edward Sapir (1949) wrote that gestures are part of a sort of "secret code" of a given culture, a code "written nowhere, known by none and understood by all" (as cited in Molinsky, Krabbenhoft, Ambady, & Choi, 2005, p. 381). For instance, while Kurds, Dutch, and Chinese all use gestures to express a number of similar ideas and feelings, they often do not use the same ones (Poortinga, Schoots, & Van de Koppel, 1993). Some cultures use more ideographic gestures, ones that trace or echo the unfurling of a speaker's thought pattern, and some are more inclined to illustrate actual referents (e.g., nouns, objects) that are used in speech (Aboudan & Beattie, 1996).

Ekman and Friesen (1969b) developed a taxonomy for classifying gestures including; illustrators, regulators, emblems, affect displays, and adaptors. Gestures should ideally also be considered in relation to the social setting, timing, social function, and context-based meaning. Most gestures occur during conversation and are related to the message being communicated. According to lexical access theory, gestures may help speakers with word retrieval and self-prompting. In McNeill's growth-point theory, gestures are seen as a reflection of the thinking required for language production (McNeill, 1992; McNeill & Duncan, 2000, as cited in Fiedler, 2007) and Bavelas and colleagues found that only 15% of hand gestures in a conversational context were determined to be unrelated to what was being said (Bavelas, Chovil, Lawrie, & Wade, 1992). Additionally, many gestures are interactive, coordinating speaker-listener communication (Bavelas, 1990). Other gestures are collaborative and in research conducted by Furuyama (2000, as cited in Fiedler, 2007), collaborative gestures accounted for nearly 18% of gestures observed and analyzed. They are considered "joint actions" of the two conversational partners (Clark, 1996).

Facial expressions usually match the speed of words. In contrast, gestures only *sometimes* match the speed of words. Hand gestures require a preparatory gesture (to get the hand in place) followed by the actual gesture (or stroke phase of the movement). Ekman noted that many gestures are timed to match the speed of words and are interwoven in a sort of integrated message or composite signal. The gestural message may not be redundant, merely echoing what

the words meant, but rather complementary, offering additional useful information to the listener (Ekman, 1997).

Universalism and Culture Influence - Summary

Matsumoto, Keltner, Shiota, Frank, & O'Sullivan (in press) have offered a theory of the relationship between culture and emotion. They have argued that a main function of culture is to preserve social order and that cultures often achieve this by calibrating emotions, because emotions motivate behavior. This calibration is usually achieved "through the cultural transmission of attitudes, values, beliefs, and concepts about emotion" and through display rules relevant to various contexts. Their theory "allows for both universality and culture-specificity with regard to emotion" (n.p.). Emotions can regulate the self, the relationship between two people, or the relationship between groups. This is universal. The authors have noted two sources of universality, "one based in biology and evolution, and the other in culture-constant learning" (n.p.). Humans – and animals – adapt to their environmental situations (Bowlby, 1969), and this adaptation is the basis on which culture is formed, at least in species that are social by nature.

As noted above, universality does not preclude cultural differences. In fact, Matsumoto observed marked and consistent cultural differences on decoder interpretations in a research effort utilizing American and Japanese judges of universal facial expressions (1992). In fact, a meta-analysis of 190 cross-cultural investigations on emotion (not necessarily limited to facial expressions thereof) published between 1967 and 2000 confirmed cross-cultural differences exist. It also determined that this variance is primarily due to mode of subsistence, religion, political system and, most of all, to cultural differences in values (Van Hemert, Poortinga, & Van de Vijver, 2007).

The discussion among researchers about degrees of universalism and cultural specificity is changing in a way that is meaningful for this effort. While Ekman, Matsumoto, their colleagues and many other researchers have argued persuasively for universal encoding and decoding of facial expression of emotion, a much smaller group of researchers has argued that the role of culture plays a powerful role in facial emotion production and decoding. Increasingly, the two groups are meeting in the middle**,** refusing to view culture and universalism as opposites or to equate culture with difference (Matsumoto, correspondence, 12-26-07). Therefore, different cultures share universal nonverbal cues and also contain culture-specific NVB differences.

The evolution of the debate and related research has led to more universalism coinciding with cultural variation being identified and validated. For example, biologically-based cues have been argued to be universal and possibly linked to reflex behaviors. These include closing eyelids and turning heads away from offensive smells, and pulling the eyebrows together when suddenly reacting to bright light.

Where cultural NVB differences exist, they are probably due to "ecological differences and differences in the meaning system of groups" (Matsumoto, Keltner, Shiota, Frank, & O'Sullivan, in press). Values are generally cultural, as are display rules. However, even display rules can have universal aspects. People everywhere tend to express positive emotions with family and

close friends, and suppress their negative emotions around strangers (Matsumoto, Yoo, Alexandre, Altarriba, Anguas-Wong, et al., 2006).

In recent years, a major debate in the field has shifted from universality or lack thereof to the *underlying sources of universality*: is universality due to biological drives inherent in a number of species or is it due primarily to shared cultural factors? The debate is unfolding among scholars and will be an important topic in the literature for years to come. In recent years, the two camps in the debate referred to themselves as "nativists" who argue for nature-based basic emotional theory and "constructivists" who see the role of nurture and culture providing most of the elements that go into the experience and expression of human emotion. Most compelling is a proposed synthesis of the two theories, as both nature and culture play important roles in emotion.

Soldier Surveys

In addition to the literature review, a qualitative survey was created and given to Soldiers who had deployment experience in Iraq and/or Afghanistan. The purpose of the survey was to assess Soldiers reactions to the importance, instructional content and instructional strategies for training nonverbal communication behaviors. Specifically, the survey contained 26 demographic questions and also asked respondents to report their individual experiences, attitudes, and needs regarding NVB and NVB training. Question formats included open-ended and multiple choice formats. In addition, there were 17 Likert-scale questions addressing NVB-related experiences with host nationals and inquiring further into Soldier wants and needs in regard to NVB training supporting their job and mission success in overseas deployment contexts. The intent was to examine and incorporate Soldiers' recommendations for nonverbal communication training into the NVB prototype.

An email invitation along with the survey was sent to the AKO email addresses of 100 former transition team members of which 39 Soldiers completed the survey and returned the survey via email. The 39 initial responses resulted in detailed qualitative information from all 39, followed by an iterative process of in-depth telephone interviews with 5 of the Soldiers, and a videotaped interview with one of those 5. The iterative process was based on informal questions to extract more details from Soldiers about their individual experiences with NVB while deployed overseas.

Because of the small sample size ($n<50$) no statistical analyses were conducted, however the survey items and the qualitative results are presented in Appendix B.

Emblem Extraction Findings

Also for this effort Dr. David Matsumoto repiloted emblem extraction procedures originally developed by Ekman and colleagues, and gathered selected, Army-relevant emblems from a cross-section of foreign countries. More specifically, the methodologies originally developed by Ekman and colleagues were adapted for contemporary use, including the compilation and categorization of a comprehensive verbal message list that aggregates verbal messages across all previous emblem investigations. Emblem extraction occurs in two phases.

The first phase – emblem extraction – identifies all possible emblems that may occur within the symbolic vocabulary of a culture, and involves expressers modeling the potential emblems. The second phase – emblem verification – involves observers judging the potential emblems and verifying (or not) their meaning within their culture. The two procedures collectively ensure the validity (extraction) and reliability (observer judgments) of the emblems identified.

For this effort, we piloted the first phase of the procedures in an initial selected emblem extraction, which occurred with nine representatives from 7 different countries including South Korea, Jordan, Iraq, Germany and Egypt. One participant was currently a university professor, one was a retired professor and the remaining were university students. Participants were asked to read selected messages from a compiled verbal message list including such phrases as "Come here", "I can't hear you", "Stop", and "Follow me". Participants then enacted the emblematic gestures for those messages that had one. Procedures were piloted using between one and four expressers (to gauge the time required to do the actual extraction), and with different camera angles and views, in order to determine the best logistic procedure to use. In some instances, a model then performed a prototype of a sample of the extracted gestures, in order to initiate the verification procedures. The goal of this preliminary research effort was to make sure the extraction procedures would be effective in gathering and validating relevant cross-cultural emblems for future efforts in order to teach the decoding of selected relevant emblems to Soldiers.

NONVERBAL COMMUNICATION TRAINING CURRICULUM AND RELATED RESEARCH

Based on the literature review and emblem extraction results, and given the emphasis on teaching validated cues that would provide the greatest benefit to Soldiers, it is proposed that Soldiers be offered the combination of a core, culture-general curriculum supplemented by culture-specific NVB curricula. The modules will embed cultural-specificity as relevant to a given focus country, region, or pertinent ethnic group. The modules include cues, functions, and applications that are universally true as well as those that are culture-specific. As the modules progress, the curriculum shifts from the acquisition of foundational NVB skills to Army contextualized applications and uses. It builds on itself and "loops back" to reinforce prior learning in real-world Army/host national situations. The Soldier finishes the curriculum package with the skills needed for NVB decoding and a real-world understanding of their usefulness in achieving mission success.

Additional skills and knowledge essential to achieving maximum accuracy in learning to decode cross-cultural NVB will be *embedded* throughout the curriculum. The knowledge, skills, and attitudes (KSAs) that will be woven through the curriculum include:

- sustaining propensity to learn and operationalize NVB decoding,
- awareness of perceptual biases that can lead to incorrect decoding.

This content will be embedded in each module through practice exercises, video, and Soldier testimonials and will be further explained in the sections below.

Propensity

Propensity means a willingness to do and likelihood of doing something. Propensity correlates positively and strongly with attitude: is the person motivated to learn NVB decoding skills and apply them in the Army context? The propensity to engage in NVB decoding is related to the anticipation of being successful at decoding and its personal and professional benefits. In a cross-cultural context, propensity in NVB decoding is increased by a skill set that includes emotional regulation, bias awareness, ability to focus and change focus of attention, flexibility, and critical thinking ability. Soldiers will learn that not attending to the NVB cues of host nationals can put them in danger, and video will demonstrate good and bad outcomes related to the awareness or lack of awareness of NVB cues in operational contexts.

Presented with the professional and personal benefits of learning to decode NVB, Soldiers may be motivated to improve their skills (Earley, 2004). In Howard's comprehensive expectancy theory, effort affects performance, which in turn affects reward and need satisfaction. This model allows all actors – including the Army itself -- to affect Soldiers' motivation. For Soldiers, the safety, well-being, and success are very powerful motivators (Rossing, & Long, 1981). Soldiers also want to be respected and valued by their fellow Soldiers. The rewards for good performance include improved ability to meet the needs of everyone concerned: the Soldier, his or her buddies, and host nationals.

Perceptual Bias

An important perceptual bias issue needs to be addressed in training, in particular Soldiers need to recognize the potential for error and learn to test their hypotheses about NVB rather than assume that their first interpretation is correct. Through the training's branching exercises, video observation, and individualized feedback, Soldiers will have many opportunities to engage in hypothesizing about NVB cues and functions they observe, to test their hypotheses, to receive individualized feedback, to revise hypotheses, and to improve their decoding-related KSAs.

In-Group Bias

A recent debate in the scientific literature concerns whether there is an "in-group advantage" in decoding NVB cues, such that individuals are more accurate when decoding the NVB of members of their own cultural group and less accurate cross-culturally. Elfenbein and Ambady (2002a, 2002b, 2003) argued for the existence of an in-group advantage based on a meta-analysis (Manusov & Patterson, 2006). An in-group bias is relevant to Soldiers because it *may encourage them to feel confident about decoding American NVB and to erroneously believe they will be equally skillful with host nationals*. Through the use of in-group and out-group NVB decoding examples, along with providing direct information, the training will show Soldiers that cross-cultural NVB decoding is generally harder than same-culture NVB decoding and, with some cues, is often very difficult and even impossible without culture-specific training. In real-life situations, Soldiers with more experience living in a given foreign culture are likely to become better NVB decoders the longer they stay in-country and adapt culturally. Various research efforts suggest that people develop expertise in a range of skills – from language acquisition to game playing skills to professional judgments – through implicit learning and exposure to the relevant environment (Cleeremans, 1993; Pacton, Perruchet, Fayol, & Cleeremans, 2001). Elfenbein and Ambady suggest the length of stay in a foreign country is likely to be positively correlated with increasing correct cross-cultural gesture recognition ability (2002b). This may in

part be due to having more exposure to the cultural out-group and experiencing it as less of an out-group over time. In addition, cultural adaptation and stay longevity can help Soldiers identify *fake* gestures (such as insurgent code gestures or other fake gestures) and differentiate them from real cultural gestures (Molinsky, Krabbenhoft, Ambady, & Choi, 2005).

Curriculum Overview

The curriculum is divided into two components an Introduction to NVB and Nonverbal Skills and Applications. The first component introduces the Soldier to the world of NVB and highlights its usefulness. The Soldier will come away with an understanding of the utility of being able to accurately decode another's nonverbal behavior. The second component includes modules two through seven and provides the Soldier with the skills needed to accurately decode a host national's NVB both up close and at a distance of over twenty feet. The overarching goal of the entire curriculum is to provide a Soldier with the knowledge and skills, as well as the motivation and propensity, to utilize the learning in-theatre. The seven modules begin with teaching crucial foundational skills (modules one through four) and then teaches Soldiers further application of these skills based on rank and job description (modules five through seven). Soldiers will not need to complete every module, but rather, the curriculum is tailored to each Soldier's particular needs. Appendix D provides further detail about the specific learning goals and objectives of each module.

Modules focusing on decoding NVB cues of host nationals will require culture-specific extraction and validation for some cues. Time and funding constraints, as well as evolving military needs, will determine which culture or cultures is chosen for specific curriculum preparation. Similarly, module teaching time-frames can be adjusted as needed.

The proposed training curriculum includes the following seven modules:

INTRODUCTION TO NVB:
I. What NVB is and why it is extremely useful to Soldiers dealing with host nationals

NONVERBAL SKILLS AND APPLICATIONS:
II. Facial expression of emotion (macro, micro, and subtle)
III. Gestures and emblematic gestures
IV. Change detection
V. NVB at a distance
VI. Aggression detection
VII. Deception detection

The seven modules are based on the extensive literature review and validated NVB principles. The first four teach foundational skills that are then applied to different situations. The Soldier gets individual practice and feedback in modules five through seven as he or she uses the KSAs of the training. This structure provides the largest return on investment and value for the Army, given that training time is limited and practicality and relevancy of material are paramount. Careful consideration of the target population coupled with state-of-the-science NVB content and instructional strategy have produced a modular multi-modal design which can

be used both as stand-alone training, school-house instruction, or in combination. The research rationale for teaching specific KSAs needed for accurate NVB decoding are provided in the sections below. Important terms will be defined or explained and the frontier dividing what has been experimentally supported about NVB from what is currently still undergoing scientific review will be addressed where relevant. See Appendix D for detailed information about the training modules themselves.

Introduction to Nonverbal Behavior

The introduction to the NVB curriculum is a module that presents the "universe of NVB" so Soldiers understand what NVB is, its scope, and its many important functions as they pertain to Army operations. The goal will be to teach Soldiers to see NVB as vitally useful to them in terms of safety and mission success and, through a range of compelling materials, to raise and sustain their propensity to learn, retain, and make practical use of what they are taught. Basic information about human communication, both intentional and unplanned or unconscious, will be taught. Nonverbal behavior will be defined as all behaviors that communicate a message without using words. Also included will be factors to do with dress, adornment, and an individual's appearance which are important for decoding and interpreting NVB. Formative and summative assessments will verify Soldiers' baseline skills and learning.

Facial Expressions of Emotion

The accurate decoding of facial expressions is the most useful NVB skill Army Soldiers can learn for several reasons. First, the face is the primary nonverbal channel that people attend to in an interaction. When people interact, they don't look at each other's hands, feet, body parts or elsewhere and in fact may be considered rude to do so. Also, the research reviewed earlier has clearly shown the face to be one of the most complex signal systems in the human body. Facial behaviors illustrate speech, regulate conversations, provide information, and portray emotions. The latter are signs of mental states, and provides valuable information about what just happened to the individual, how he or she interpreted events, and what behavioral response he or she is now primed to take. This information is important for any Soldier trying to distinguish friends from foes, build relationships, establish rapport, or assess the credibility of information being provided. No other nonverbal channel has been shown to provide as specific information as the face. The proposed training will include how to correctly recognize and identify macro, micro, and subtle (weak or concealed) facial expressions of emotion in a range of contexts. Signs of negative emotions (e.g., anger, disgust) are important for Soldiers to learn and should be trained both as universal cues and with culture-specific issues in mind. Blended expressions, where ambivalence or a combination of emotions is present, are also important to train.

Macro expressions of emotion are universal, easy to interpret, and last between .5 and 4 seconds. They involve full-face expressions, that is, movements of the facial muscles in all areas of the face relevant to that emotion. They may have more or the same degree of facial muscle involvement as micro emotions but are easier to interpret because the decoder has more time to observe them.

Micro expressions of emotion are trainable cues that happen in very short spans of time, sometimes as little as 1/24th of a second, the equivalent of a film frame, or even 1/30th of a second, the equivalent of a video frame. These expressions of emotion generally last for under .5 of a second, and are correlated with deception, ambivalence, and true feelings the person seeks to hide. They can involve full or partial expressions and are often signs of concealed or repressed emotions. They are universally portrayed, though the expression that follows them may be a cultural display-rule-influenced effort to hide the emotion they reveal. Appropriate training may increase a person's decoding ability by 20-30% (Matsumoto, conversation with authors, 2-6-08). Ekman and Friesen found that they were sometimes "fragments of a squelched, neutralized or masked display…. [M]icro displays when shown in slow motion do convey emotional information to observers" (Ekman & Friesen, 1969a, as cited in Ekman, 2003, p. 209). Ekman also observed that "most people respond to the macro [facial emotional] expressions and are misled, while a few keen observers detect the micro expressions and other imperfections in the macro displays and are correctly informed" (Ekman, p. 210). Soldiers can be trained quickly in micro-emotions by using the Micro Expression Training Tool (METT) or an adaptation of it specifically suited to a given cross-cultural context (Ekman, 2002). The METT includes feedback to users about their answers and pre- and post-tests. Soldiers will be instructed that micro-emotions do not necessarily signify deception and that they can simply mean contradictory emotions have been activated.

Subtle expressions of emotion are partial expressions and usually appear in just one part of the face. Like micro emotions, they are harder to detect and decode than macro emotions. Micro and subtle emotions sometimes precede macro emotions. Both micro and subtle emotion recognition and decoding can be measurably improved by training– in some cases in less than an hour – by means of computer tools created by the Ekman Group (Ekman, 2002).

Cultural differences in display rules may impact the encoding and decoding facial expressions of emotion (Ekman & Friesen, 1969b; Matsumoto & Ekman, 1989). Although facial muscle movements correlated with core emotions are the same worldwide, various other factors affect how these movements are decoded by people from other cultures. Foreigners' physiognomies (facial bone structures) may be somewhat different from that of Americans and may lead Soldiers to have decoding challenges. For instance, people with protruding foreheads or brows can give the appearance of staring or being angry even when they are feeling emotionally neutral (Ekman, 1979). Asians have less white showing above the irises of their eyes because of eyelid differences and this, too, can lead to decoding challenges (Matsumoto, 1989). The upper eyelid raise gesture of Africans and some African-Americans, with their often dark skin pigmentation, shows greater eye-skin contrast than with lighter-skinned people, and this leads to different and sometimes incorrect decoding inferences. Dark-skinned people may appear to be staring or to be angry – compared to lighter-skinned people -- when they make the very same expression. These examples illustrate that it is important to train using culture-specific models and to point out differences that lead to misinterpretations, even though the movement of the facial musculature may be the same. A training goal is to teach Soldiers in such a manner their decoding speed and accuracy improve in cross-cultural contexts where facial hair, garments, blended emotional expressions, and display rules may make the task more challenging.

Gender differences in the expression of emotion exist both within cultures and cross-culturally. Training should involve extra attention to emotion communicated by the eyes since Soldiers may encounter instances of women dressed in burkas or other highly clothed individuals. In general, the two genders are the same in their use of facial muscles to express the universal facial expressions of emotion. What is different across genders is expressivity, or the frequency with which women use facial emotions. Women may minimize expressions of negative emotions where cultural display rules encourage them to do so (Kring & Gordon, 1998; Brody & Hall, 2000, as cited in Lewis & Haviland-Jones, 2004).

Gender differences also exist in the non-morphological (expressive) signals faces may provide, and these may affect emotion recognition. For example, women are more likely than men to wear garments that cover part of their faces and to wear cosmetics or adornments that may change the appearance of an expression, despite no gender differences in the actual displacements of the muscles. Men are more likely to have facial hair and together all of these non-morphological signals may affect the appearance of expressions.

For both genders, a blank face or expressionless face may seem to be a neutral expression, but socially it can convey a "leave me alone" message to others (Givens, 2006). In addition, an investigation conducted in America revealed important overt social aversion cues that correlate with the desire to avoid contact: "lip-compression, lip-bite, tongue-show, tongue-in-cheek; downward, lateral, and maximal-lateral gaze avoidance; hand-to-face, hand-to-hand, hand-to-body, and hand-behind-head automanipulations; and postures involving flexion and adduction of the upper limbs" (Givens, 1978, p. 354). European gaze patterns confirm these findings (Grant, 1969, and Kendon, 1967, as cited in Givens) and gaze avoidance can signify stress and anxiety, or perhaps having something to hide.

Training will include instructing Soldiers to be aware of signs that can affect their decoding accuracy. When people look at faces, there are actually four kinds of signs that affect the appearance of the face: *Fast* signs are what we would call nonverbal cues, as they are the actual facial expression of emotion itself. *Slow* signs show up as the person ages, in the form of wrinkles or other facial information caused by the passage of time. *Static* signs are the permanent facial structures, such as brow bones, cheekbones, and so forth. Finally, *cosmetic* signs are added by people who use makeup or other adornment, wear glasses, and so forth (Ekman, 1977, as cited in Matsumoto, 1989).

The training will contain appropriate host national facial images and stimuli. While facial stimuli currently exist that can be used for such training, they tend to be full-face portrayals of each of the universal emotions by relatively young adults with no facial hair or other coverings. With few exceptions, the number of represented ethnicities in the stimuli is very limited. Therefore, it is proposed that a collection of new faces of people of target populations – such as Iraqis and other peoples of interest – in local dress and at varying angles and distances be undertaken.

It is possible to train Soldiers to differentiate between genuine spontaneous expressions and deliberately created expressions. Asymmetry is a subtle sign of deliberately created expressions since natural, spontaneous expressions tend to be symmetrical (Ekman, 2003). Furthermore,

spontaneous expressions are of short duration – between half a second and four seconds (Ekman & Friesen, 1982) and tend to have a "smooth" onset, brief apex (or moment of maximum muscular contraction), and smooth offset (or time from apex to disappearance of expression). In contrast, deliberate expressions are less smooth in onset or offset and may be held too long (Ekman & Friesen).

Soldiers also need to know that not all facial behaviors are expressions of emotion. There are many facial behaviors that function as illustrators, adaptors, or regulators. Illustrators are directly tied to speech and illustrate what is being said, for example by emphasizing and softening, while adaptors are unconscious adaptive efforts to meet needs. Regulators help maintain and regulate conversations or interactions and may include head nodding, eye movements, and some hand gestures. When these expressions accompany spoken language, some have syntactic functions, being timed to the syntax of spoken language itself to serve as nonverbal punctuation, and some have semantic functions, where they add to or comment on the meaning of what is being said (Chovil, 1989). In the absence of speech, these facial gestures can serve as a way to keep the conversation flowing (through nonverbal reactions) as the listener indicates that he or she is listening, is puzzled, or understands the message. Some cultures are highly gestural. For example, Iraqis use illustrators much more often than Americans do. Iraqis are so highly gestural that some Americans feel aggressed when they are bombarded with more illustrators and different proxemics (closer body proximity) than is culturally normative for them. (See Appendix C for more information on Iraqi NVB.) This can lead Soldiers to become emotionally stressed. Because emotional regulation contributes to being able to decode gestures successfully, it is a crucial skill for Soldiers in operational contexts. Emotional regulation strategies can be cognitive (reframing, count to 10 before making a decision, etc.) or they can be behavioral/physiological, such as breathing and self-calming strategies (Matsumoto, conversation with authors, 2-5-08).

Finally, in training to recognize facial emotions, it is important to understand the current limits of the information it provides. For example, it cannot tell definitively that anger will become aggressive behavior, but it can warn when someone may be on the verge of losing control. The Department of Homeland Security has a new program called Project Hostile Intent, which is using biometrics of faces and voices to try to identify hostile intent and deception, based in large part on the research of Matsumoto and his colleagues. The results of this program may influence the training addressed herein.

Gestures and Emblematic Gestures

Gestures have universal aspects – all people use them to perform certain functions – but they also have a high degree of cultural specificity. As Kendon pointed out, "It seems that gestures that deal with negation and affirmation, certain interpersonal regulatory gestures, gestures of pointing and gestures depicting the size, shape and height of things, may all be found to be similar from one very different part of the world to another" (2004, p. 337). He warned, appropriately, that what appear to be universal gestures may have "local variations" and that "they will require comparative studies that are a good deal more attentive to the exact ways in which such gestures are performed and to the contexts of use, than has hitherto been the case" (p. 337).

What are the unique properties of gestures, including emblems? Why are they such an essential aspect of NVB? Kendon pointed out the following about gestures. A gesture: 1. can be "executed more quickly than a spoken utterance," 2. is silent and can be used at the same time as speech (it can comment on, supplement, or otherwise interact with speech), 3. is visible and can be seen across greater distances than spoken words can travel, and 4. does not require "the kinds of organization of mutual orientation" conversation does (2004, p. 343). The "across distances" aspect of gestural communication is of particular use to Soldiers working overseas on SSTR missions. Emblems are especially useful to Soldiers because they support deception detection, can be seen at a distance, and are relevant to interviews/interrogations and surveillance and scene-scanning (Ekman & Friesen, 1969b).

A percentage of gestures are merely regulators or adaptors and not of significant interest or usefulness to Soldiers. To be able to differentiate among hand gestures and separate the comparatively meaningless from the meaningful, Soldiers can be trained to understand what illustrators and gestural affect displays look like in a given cultural context.

Gestures are indeed universal as a human behavior. Congenitally blind people use gestures when they speak (Roth, 2001), as have thalidomide-affected people born blind, deaf, without arms, and thus without means to acquire gestural information the usual way (Eibl-Eibesfeldt, as cited in Weitz, 1974). The genders often express different gestures (Ostermeier, 1997), for example women in the U.S. are more likely than men to avoid certain NVB expressions associated with power and privilege (Ellyson & Davidio, 1985). Gesture can be affected by the language used, as gestures can have a close relationship to speech and be affected by issues of stress, intonation, and pacing (Kendon, 1981). Bilinguals generally gesture more than monolinguals, and gestural habits in one of their languages can affect their gestures in their second language (Pika, Nicoladis, & Marentette, 2006).

Emblematic Gestures

Soldiers will also be taught how to decode specific culture-specific emblems. Emblematic gestures (also known as emblems) are an important subset of gestures whose meaning can be translated into words – usually several words. According to Ekman and Friesen, emblems are used as deliberate communicative acts, unlike some other gestures, such as illustrators, adaptors or regulators, which may be used (produced) without conscious intent on the part of encoder (1969b). Emblems are often used unconsciously, especially when people are trying to conceal emotions, and thus can be a form of NVB "leakage." They can reveal mental states, and can also be used volitionally to command (e.g., locomotion commands), insult, or emphasize a verbal meaning by expressing it with a nonverbal cue.

An investigation with South Africans and Europeans found that although some emblematic gestures carried the same meaning, some carried markedly different meanings. An emblem meaning "cuckold" to European subjects meant "cool" to South Africans, the "victory" sign for Europeans was a sexual insult to South Africans, and the gesture meaning "effeminate" to Europeans meant "Pay attention!" to South Africans (Scott & Charteris, 1986). Clearly, lack of understanding of crucial emblems can lead to misunderstandings between Soldiers and host

nationals. Let us briefly consider the Army-relevant issue of gestures in Iraq. Iraqis are highly gestural and rarely speak without moving their hands. Illustrators are the most commonly used gesture in Iraq, based on a review of naturalistic, unstaged video shot by Iraqi filmmakers and analyzed by nonverbal behavior SME Dr. David Matsumoto. Illustrators usually accompany speech and serve to punctuate, emphasize, or otherwise comment on what is being expressed. Illustrators in Iraq often carry emotional content in that they confirm and emphasize emotional content in speech and in facial expression. This gestural expressiveness is true of Arabs in general. Barakat (1973) found that Arabs use gestures and body movements in order to communicate reactions silently. "The Arab is often accused of speaking with his hands and body as well as his mouth. So intimately related are speech, gesture and culture, that to tie an Arab's hands while he is speaking is tantamount to tying his tongue" (as cited in Aboudan & Beattie, 1996, p. 274). (For more information about Iraqi and Arab NVB, see Appendix C).

Cross-cultural decoding of emblematic gestures is not easy without cultural experience or cue specific training. In a research effort by Poortinga, Schoots, and Van de Koppel (1993), only two percent of selected Kurdish emblems were recognized by Dutch research subjects. While those research subjects were not trained in emblem encoding or decoding, as it was a judgment rather than a training investigation, it is known that emblem production and decoding skills can be trained (Allen, 1995). Some emblems are easier to decode than others and Poortinga, Schoots, and Van de Koppel called these "referential gestures" and define them as gestures with "a small distance between code and referent" (p. 34). In contrast, in conventional gestures there is a stronger cultural component and without culture-specific information, a decoder may be at a loss. An example of a referential gesture could be throat-slitting, with the finger used in place of the knife. An example of a conventional gesture is the peace sign, which is an arbitrary emblem with a meaning not logically connected to the concept of peace.

It is important to note that validating an emblem does not mean that 100% of the population where it is used will decode it correctly. In the 1970s, Johnson, Ekman, and Friesen (1975) published a list of "verified American emblems." Emblems signifying commands such as "be silent", "wait", and "stop" were decoded with 100% accuracy but "stay here" was decoded correctly by only 77% of participants and "hello" by only 80%. Both the emblems and the decoding accuracy rates may have changed in the last thirty years, because emblems are culture-specific and cultures change over time. It is imperative in training today's Army Soldiers that recently gathered and validated emblems be used rather than results from literature that is anecdotal or dated. The results of our emblem extraction effort demonstrate the procedures needed to gather and validate emblems are feasible and can be used to authenticate emblems for the current training.

Research confirms that some cultures are more effective than others at using gestures to communicate (Bangerter**,** 2004; Gerwing, 2003, as cited in Fiedler, 2007; Gerwing & Bavelas, 2004). For instance, Italians are more effective than British at using hand gestures to convey semantic meaning (Graham & Argyle, 1975; Efron, 1941; Ekman, 1976). American emblems have derived from various cultures, though predominantly from Europe. Arab emblems and other gestures have "subtle physical differences that amount to great semantic variations" (Safadi & Valentine, 1990, p. 278). Interestingly, some American and Arab emblems were essentially identical as of nearly twenty years ago. For example, tapping with fingers on the forehead or

side of head meant "thinking" in both cultures, hand cupped to the ear meant "I can't hear you," and gestures for "wait" and "give" were the same and may still be the same. However, tongue clicks, rubbing of one's own head, staring, lowering gaze, and hand covering eye had dramatically different meanings (Safadi & Valentine). Paralinguistics present other challenges, as Americans' indication for "I can't hear" was used by Arabs to express their sense that the other person might be lying to them. Intonation and pitch are also different in ways that can lead to miscommunication, even for Soldiers who understand no Arabic words (Safadi & Valentine). It behooves Soldiers to learn how to correctly decode common Arab gestures and be aware that paralinguistic cultural differences that can cause interpersonal misunderstanding

Emblematic gestures are highly useful to Soldiers because they have stand alone meaning, they are culturally-specific, their message is rarely ambiguous (Poortinga, Schoots, & Van de Koppel, 1993) and they can take the place of verbal comments and commands. To use Iraq as an example, its emblems can be decoded at a distance and used to understand Iraqis communicating with Iraqis. There is a finite set of emblems that are reliably identified and used in a given country or ethnic group, and within that set a finite number of useful emblems for Soldiers to be able to decode.

There are very few research efforts documenting what Matsumoto calls "emblem vocabularies" of different cultural groups (Matsumoto, correspondence, 12-26-07). An emblem vocabulary is a list of emblems commonly used in a given country. Emblem vocabularies vary country to country. Among the existing findings are those by Ekman and Friesen (1972), and Efron (1972). More recent work on non-American "quotable gestures" has been completed by Kendon (1992) and Brookes (2004). It is interesting to note that there is overlap in gesture vocabularies between very different cultures. For instance, Creider (1977) found 24% overlap in gestures in certain East African groups and those of North Americans. This emblem work, however, is dated, and as emblems both are born and fall into disuse, it is important to have up to date validated research. For countries where the Army has current active missions, there are no recent validated emblem research efforts.

Change Detection

Change detection is the ability to notice change through a sensory modality, such as vision. For the purpose of NVB training, it is important for Soldiers to learn what is individually normative and predictable and to be able quickly to note deviation from that *baseline*. If an Iraqi market were usually active, people-filled, cheerful, and relaxed, any change to lack of people, unexplained tension, or atypical quiet, would be a sign that something has changed. The key is to teach Soldiers to scan for and note a baseline set of NVB cues for a person, group, or place, create expectancy in him or herself about what is normative, and analyze changes from that baseline for meaning (e.g., is there fear, anger, attempt to hide or deceive, has group ecology changed, and have objects or architecture been added, removed, or altered?).

NVB at a distance has a strong relationship to change detection. Both skills can be trained by using still photographs and video clips to engage attention and increase awareness of a specific set of cues. The concept of "background noise" is important to this training effort, because if Soldiers can focus on the most important cues and ignore extraneous information, they are more

likely to identify meaningful change and be able to act on that information. Ideally, change detection includes *detecting* a change, *identifying* the nature of the change, *localizing* the change and *interpreting* its meaning.

Though it would seem reasonable that most people would detect significant change to a scene, research has shown this not to be the case. Under a wide variety of conditions we can be amazingly blind to changes, failing to see them even when they are large, repeatedly made, and anticipated (Rensink, 2002; Rensink, 2000; Simons & Levin, 1997). Rensink, O'Regan, and Clark (1997) called this change blindness, which Rensink (2002) described as a striking occurrence influenced by expectation of change or of status quo, where and if the attention of the observer is focused, and the complexity of the context. It is even true of "large changes that occur during a visual disruption. The explanation for this change blindness is that focused attention is needed for a visual experience of a change; as long as attention is not sent to an item, it will not be seen to change" (Rensink, 2004, p. 27).

Rensink has identified an additional phenomenon, which he calls change blindness blindness. This is the unwillingness to acknowledge that change blindness exists and has an impact on visual-cognitive perception. This is a problem for Soldiers, given the amount of intentional, attention-based observation they need to do. Many people are unaware of how the human visual system works. We move our eyes several times a second when looking at scenes, an automatic behavior called saccades. There is an extremely brief instant of disruption of seeing in part of the saccades cycle, and the brain does its best to fill in missing visual information. Saccadic eye movements are neurologic decisions about where next to direct eye gaze. Each movement reorients the main line of sight so that new persons or objects can be explored (Caspi, Beutter, & Eckstein, 2004).

When we look at a scene, we cannot take in all of the visual information equally. The parts of the scene that fall on the fovea – the part of the retina that has the highest concentration of "cones", which are cells that produce crisp, day-vision images – are perceived more clearly (Reinagel & Zador, 1999). The rest, except in people with excellent peripheral vision, is less well perceived. Detecting change in a visual scene is a complex process, as change can be explicit or implicit, dynamic (ongoing) or complete; it refers to "the transformation over time of a single structure" (Rensink, 2002, p. 250) and is theoretically distinct from motion (e.g., a river flowing) and difference (e.g., two cars of different models or colors).

A great deal is unknown about visual-cognitive perception and humans. It remains a cutting edge of the known world short of theoretical and experimental territory. It is interesting to note, however, that while all people share the same sorts of visual cognition potential, due to our brains and visual systems, there are cultural differences in individuals' perception. One noteworthy difference is between cultures that focus on foregrounds and cultures that focus more on backgrounds. For instance, Americans tend to isolate objects, people, and individual items in scenes, whereas Asians tend to take in whole scenes and have a "gestalt" sort of relationship to the integration of the components (Nisbett, 2003). This difference corresponds to a cultural cognitive bias difference between the two cultural groups as well. A question for researchers is whether peoples that excel at one skill set can be trained to be good at the other skill set as well, as both are useful.

The easiest change to detect is the *existence* of an object or person that has been added to or removed from a scene. Research has determined that it is easier to detect deletions than additions in naturalistic scenes, but only if a unique object or person (not multiple identical objects or similar-looking persons) is removed (Mondy & Coltheart, 2000). More important, Rensink's research revealed that humans can keep track of only a few objects or people at a time (2002). Change can relate to the properties, identity, or spatial arrangement of items or people. Detection may be explicit (and obviously visual), semi-explicit (with no visual experience but a feeling that something is different), or implicit, meaning completely unconscious but nonetheless triggering some sort of reaction.

Change detection experts are very intrigued by the latter two categories: semi-explicit and implicit change. People have reported having "gut feelings" or "intuitive perceptions" about changes occurring without being able to point to any visually explicit change. What does this mean and how is it relevant to Soldiers? Rensink has discussed the notion of "sensing without seeing", which suggests that various brain systems are at work simultaneously when we perceive change in the world around us (Rensink, interview with authors, 1-10-08). "It has often been assumed that when we use vision to become aware of an object or event in our surroundings, this must be accompanied by a corresponding visual experience (i.e., seeing)…. [T]his assumption is false…. The subjective difference between sensing and seeing is mirrored in several behavioral differences, suggesting that these are two distinct modes of conscious visual perception" (Rensink, 2004). There are thus conscious visual streams and unconscious visual streams. People who have been experimentally given "blindsight", the inability to see visually, are able unconsciously to detect fear signals without seeing cues. It is believed that humans are thus equipped with a biological neural early warning system that can alert us to threat without a conscious appraisal process (Liddell, Brown, Kemp, Barton, Das, et al., 2005).

Furthermore, research has revealed that approximately 30% of the population is especially skillful at implicit or intuitive visual change detection (Rensink, 2004). Remarkably, these people are able reliably to *sense* and remain aware of continual change without being able visually to *see* it. There is an assessment test validated by multiple efforts that can be used with Soldiers to see who has this ability (Rensink, conversation with authors, 1-10-08) though it is possible to train Soldiers with and without the ability to improve their sensing and seeing skills.

Rensink's *coherence theory* suggests that focused attention "acts as a hand that 'grasps' several proto-objects from this constantly regenerating flux. While held, they are part of a coherence field representing an individuated object" (Rensink, 2002, p. 262). To teach Soldiers to baseline street scenes and other contexts, we have adapted this concept into a baselining method with four steps: 1. Pool information about a group of objects or humans and maintain them in short-term memory; 2. Collect more information (look for change), 3. Dissolve information pool when ready to release attention (field loses coherence). 4. Begin again with a new informational field.

> *A hypothetical example could be that a Soldier assigned to help monitor the stability and safety of an outdoor public food market used the baselining steps to collect information on norms for the interior of the market and its perimeter. Two weeks into his assignment, he saw an unusual piece of tarp material on the ground, with trash piled on top, near one*

of the main points of entry and exit. Because of his awareness that this was a change from baseline, he requested help from munitions experts, who found an IED newly buried in the earth under the tarp.

It is not possible to hold any pool indefinitely and keep adding information, so there are limits to what is humanly possible. The four-step method, however, is useful for Soldiers to focus attention to specific portions of a visual field or specific people, objects, or dynamics in a larger field. Griffin and Nobre have demonstrated people can hold a spatial location in working memory after they have viewed it and can orient to that internal visual memory (2003). However, this orientation is probably of limited time duration.

Soldiers taking the NVB training will practice seeing in two ways: foreground-dominant and background-dominant. They will be trained to use their sensing, seeing, and cognitive memory abilities to make mental notes about what's normative nonverbally for a given person, place, or context. Rensink emphasized that baselining requires obtaining a general sense of a person, place, or context, and then focusing attention on possible changes. The key is focusing attention – localizing it – on the things that most merit attention. "When you learn what to expect, your gut feeling will alert you to change" (Rensink, conversation with authors, 1-10-08). Thus, the aforementioned techniques for teaching *focused* attention should be emphasized in training.

Our visual cognitive ability is much more limited than many people realize. Investigations of "gap-contingent change" reveal that only approximately four items can be effectively monitored at a time (Luck & Vogell, 1997, as cited in Rensink, 2002, p. 264). As Rensink argued, it is important to be able to *scan a scene efficiently* and narrow demands on attention by knowing what to focus on and what it is reasonably safe to ignore. In the case of faces, it is possible to train scanning at various face sizes and thus various hypothetical distances. Even a video image of a face at *one-fifth normal size* made no difference in observers' judgments about emotion, attitude, or personality (Ekman, Brattesani, O'Sullivan, & Friesen, 1979). However, because there is a central fixation bias whereby individuals tend initially to orient their gaze in the center of a video screen (and perhaps also a naturalistic scene, based on centering the eyeball in its orbit), video training should ideally take account of this bias. Eye gaze ranges away from the initial central fixation in conjunction with task-based ocular seeking and location of visual information in the scene (Tatler, 2007).

When tasks are involved, we have a choice of visual strategies that reduce global uncertainty and give us the greatest amount of information about the "big picture" or that reduce local uncertainty and solve whatever visual problem is making us uncertain. To the surprise of some researchers, experimental participants have opted in task tests to choose to reduce local uncertainty rather than to reduce global uncertainty (Renninger, Verghese, & Coughlan, 2007). Equally surprising to researchers who have focused on the notion of saliency – people or objects that in some way stand out – is the discovery that saliency does not predict eye gaze nearly as well as expected (Renninger, Verghese, & Coughlan). It is also useful to know where the gaze tends to go when undirected by task. Contrast and edges attract more attention than visual information related to light and color. Dark or shadowy areas tend to be avoided (Tatler, Addeley, & Gilchrist, 2005). Areas of high spatial contrast also attract eye gaze (Reinagel & Zador, 1999).

Training in visual attention is very helpful to Soldiers who need to look for certain cues. Research reveals that cued stimuli – whether masked (and therefore difficult to detect) or unmasked – are found more quickly than uncued stimuli (Smith, Ratcliff, & Wolfgang, 2004). The results of experimental training involving opportunities to practice finding stimuli even in the context of steadily increasing visual noise (making the targets harder and harder to detect) revealed that training improves performance (Dosher & Lu, 1999). Also encouraging are research results that show how intentional visual searches – as by Soldiers – allow the searchers to ignore irrelevant visual information and focus on what is relevant (Eckstein, Pham, & Shimozaki, 2004).

In addition, there is a complicating factor, which is that coherence and detail are inversely related. If a scene is held as a coherent field in the memory, it will contain less detail than if it is not so held. Thus, as Rensink pointed out, "no visual representations are both coherent and detailed" (Rensink, 2002, p. 265). Soldiers can mitigate this effect by choosing to focus on select people or objects themselves, thus stabilizing them, *or* by focusing on layout of a scene, without such focused attention on properties of people or objects. Attention management is key to Soldiers consciously choosing what most needs their cognitive and visual attention. With training and practice – through video, software, and interactive learning – Soldiers can improve their ability to attend to specific sorts of changes. In illustration of this possibility, Werner and Thies (2000) noted that people who were expert at understanding American football were much better at change detection during games (i.e., what happened on the field and what it meant) than were novices.

It is important to note that change detection and baseline training are also crucially important skills for face-to-face interaction. Detection of changes in NVB from baseline, including in regard to emblematic gestures and emotion, is an important aspect of credibility assessment and evaluating truthfulness. This is an especially relevant skill for field interviewers and interrogators. This training module, therefore, will be especially relevant for the development and improvement of face-to-face NVB skills as well as distance decoding skills.

Nonverbal Behaviors at a Distance

There is no research specifically on NVB across distances. What is known is that facial expressions of emotion can be decoded at distances of up to twenty feet (Ekman, Brattesani, O'Sullivan, & Friesen, 1979). Beyond that distance, other cues, such as hand gestures, body posture, vocalics, haptics (i.e., touch), group ecology, and use of architecture or props (to hide behind or hide possible weapons or contraband) become the most useful cues. Because posture can often be recognized at a distance greater than that at which facial emotion is visible, training will include exercises to decode key emotions through posture at a distance. Decoding of "distance" cues can also be influenced by culture, as Kudoh and Matsumoto (1985) demonstrated in their investigation of the differences between Japanese and American participants assigning semantic meaning to body postures. Americans were influenced more by interpersonal issues, such as whether they liked or disliked someone, whereas Japanese were mainly influenced by issues of power and status.

In a group, the dominant member may physically take up more space than the group's more submissive members. The findings of Tiedens and Fragale with American experimental participants, point to the probability of hierarchical differentiation as a natural social state. Group members faced with another member's dominant behavior may decrease their postural stance and size (Tiedens & Fragale, 2003). There are thus ways to identify a group leader at a distance beyond the zone in which spoken language and facial emotion can be decoded. It can be done with clothing, where arms and legs are located in space, expansion (vs. protection) of the frontal plane of the body, and so forth.

A research effort examining group communication networks (Brown & Miller, 2000) revealed that dominant group members or leaders have more central roles in group communication networks, and send and receive more messages than do more submissive group members. Leaders may attempt to make their bodies look bigger than they are by means of extended limbs (a vertical looming stance), a high-stand antigravity display, hands on hips with elbows extended, deep vocal tones, squared shoulders, toes out, and stiff or strutting legs. These cues may help Soldiers identify group leaders from a distance. When the chest is extended forward toward the other person, it is known as a broadside display (Givens, 2006). Detection of dominance is something people are able to do at better than chance rates and they use different gender-related cues when dealing with males and females (Schmid, Hall, Murphy, & Colvin, 2003).

Detecting emotion from bodies at a distance – including beyond twenty feet where the facial expression is not easily decodable – is possible and is a useful strategy for Soldiers. Coulson used 176 "computer-generated mannequin figures… produced from descriptions of postural expressions of emotion in order to investigate the attribution of emotion to static body postures" (Coulson, 2004, p. 117). Participants were asked to attribute six key emotions (anger, fear, happiness, sadness, disgust, and surprise) to the mannequin figures (at close range) and reached over 90 percent concordance for anger and sadness postures. With dynamic displays (postures accompanied by some movement) and a six-choice forced choice methodology, experimental participants identified fear postures 71% of the time and happiness 96% of the time. Recognition rates were significantly above chance for anger, happiness, sadness, fear, and surprise. The only emotion studied that was not identified at levels significantly above chance using this method was disgust. Descriptions of emotion postures involved degrees of joint rotation and general body movements. For example, the postures for anger were described as: "involving a jutting chin, angular body shape, forward weight transfer, chest out and angled forwards, and a bowed head" (Coulson, p. 119). In terms of joint rotation, this posture involves 0 degrees of abdomen twist, and between -80 and +110 degrees of joint rotation for the following: chest bend, head bend, shoulder ad/abduct and swing, and elbow bend (see Coulson, p. 123). Obviously, this is one version of many possible related postures individuals use to express anger, but it is one reliably recognized by experimental participants. For Army training, it would be possible to train dynamic postures by means of video, alerting Soldiers to what to look for in postures, especially at a distance.

Key factors in decidability of body postures also included the viewing angle and anatomical variables. The investigation did not include gestural emblems in order to determine what body posture alone could communicate. Specific joint rotations and other postural cues were

documented to offer keys to decoding (Coulson, p. 123). Soldiers can benefit from knowing that anger is most easily detected from body posture by viewing a person from the front and that fear is best detected with a side view (Coulson). A major limitation of this research is that Coulson used judgment studies where he chose the postures rather than production studies where the actual postural emotion is spontaneously displayed, documented, and validated. However, this remains a promising area for NVB at a distance.

As Coulson's experimental research suggests postures correlated with core emotions can sometimes be assessed at a distance of over 20 feet if the subject's posture can be seen and decoded. In a related research project, De Meijer (1989) set up a categorization system to classify movement and postural positions. His seven dimensions include: trunk movement (stretching – bowing), arm movements (opening – closing), vertical movement (upward – downward), sagittal movement (forward backward) degree of force of movement (light or strong), and speed of movement (fast or slow). Camurri, Lagerlof, and Volpe (2003) contributed motion fluency and impulsiveness as parameters to evaluate movement. These parameters are helpful in considering whether a gesture looks threatening and/or is linked to an emotion. For instance, submissiveness has been associated with crouching or making the body take up less physical space, soft voice, bowed head, stooped shoulders, and drawing back or turning away by the feet, trunk, head or entire body (Givens, 2006). At a distance as well as up close, *intention movements* help predict movements and behaviors about to occur. They are the movements people make as they move their bodies into position to make some sort of intentional gesture or motion and may reflect a desire to leave a situation or otherwise take action.

In terms of group ecology or the relationships of members of a pair or group, it is useful to observe whether dyads or group members remain together or split apart. Individuals who were together and then split up for separate purposes may warrant extra observation. Are there signs of attempting to disguise affiliation with a group? Do individuals appear to be waiting for something or watching something or someone? Are any suspicious objects with or near them? American border patrol officials have noted that when two people walk together, it is often a benign situation, but when one person follows another closely and intently, a behavior known as "walking-in-line", the two may be working as a team with an undesirable purpose (Givens, 2006).

Aggression Detection

It is vital that Soldiers learn to decode versions of *anger*, for there are specific signs when anger, a facial expression of emotion, is catalyzing into *aggression*, a behavioral enactment of that anger. Although three emotions have been associated with hostility that may lead to aggression – anger, disgust, and contempt – anger is the lead catalyst of aggressive behavior (Izard, as cited in Pliner, Krames, & Alloway, 1975). Anger coupled with disgust, an emotion of revulsion, is an equally strong and sometimes stronger warning that aggressive behavior may occur (Matsumoto, conversation with authors, 2-6-08). Anger has a specific physiological signature in that it increases blood flow, affects cognition, and leads to heightened vigilance for anger in others. Training in this area will help Soldiers identify "persons of interest" based on their emotional displays and other behavior, become aware of what NVB cues are most likely to

reveal imminent or incipient aggression, and help Soldiers understand dominance-submission dynamics in groups and make educated guesses about potential group leaders.

Anger is known for being both highly expressive and not very well controlled (Scherer & Wallbott, 1994) and is thus a very useful cue for Soldiers. Anger that may develop into aggressive behavior can be marked by the following NVB cues or changes in cues: facial expression; screaming; gesture and movement change; speech disturbance or change in tempo, melody, pitch, or length of utterance; increased heartbeat; tensed muscles; changes in breathing; and feeling or looking hot (Matsumoto, Wallbott, & Scherer, as cited in Asante, Gudykunst, & Newmark, 1994). Specifically, anger has an open-mouthed version and a closed-mouth version plus degrees of upper eyelid raise (Ekman & Friesen, 1975). Sometimes the sclera – or white of the eye – is exposed, leading to a bulging or staring appearance.

Fear, which can also trigger violence, can cause an even more dramatic exposure of the sclera, especially in Americans. Both fear and anger are marked by heart-rate acceleration and autonomic nervous system changes (Levenson, 1992, as cited in Scherer & Wallbott, 1994). When people -- responding to display rules or to being observed -- attempt to control their expressions, they are most likely to control the mouth area (Ekman & Friesen, 1975). With verbal aggression, the reason is quite obvious: close your mouth and you are less likely to say something that you will regret (Matsumoto, 1989).

There are facial expressions and other cues that reveal that a person is about to become violent. Peace officers in five countries in different parts of the world have reliably judged two sets of "aggression faces" that reveal the possibility of imminent violence. Aggression face #1 indicates a loss of impulse control, which is a harbinger of impending violence. Aggression face #2 is a facial expression that indicates an impending premeditated assault (Matsumoto, conversation with authors, 12-30-07). Training Soldiers to recognize these faces is possible and may help to reduce injuries and loss of life.

Tiedens and Fragale (2003) studied interpersonal power dynamics, especially those of dominance and submission. Dominance has been defined by Ellyson and Dovidio (1985) as a "desire and a predisposition to attempt to influence others. As a group characteristic, it describes the position of one individual vis-à-vis another individual along some ordered dimension" (p. 7). Tiedens and Fragale found there is a high degree of reciprocality in dominance behavior, in that dominance behavior by one person is likely to elicit submission behavior by others. This is partly because people are more socially comfortable in that sort of configuration although their behavioral adaptations are often unconscious. Dovidio and Ellyson (1982) and Exline (as cited in Cole, 1972) documented gaze behavior and determined that those who look at others while they themselves are speaking but often fail to make eye contact when listening to respondents are judged to be dominant over those for whom the pattern is reversed. Whether this gaze behavior is valid in a specific non-U.S. country should be tested experimentally. In addition, it is now known that there are cultural differences in the meaning of eye contact.

Territoriality – in the form of defense or acquisition of individual or group space – is also an ethological trait and can help identify potential for aggression (Lyman & Scott, 1967). Territories can be public or private, bodily territory or space around bodies; reactions to

encroachment can take the form of active defense or protective insulation. Space and dominance/power have an interesting relationship to each other even on the metaphorical level. As Sommer wrote, "Many of the concepts used in discussion of leadership, such as central figure, dominant position, upper echelon, and high status are based on spatial analogies" (Sommer, as cited in Weitz, 1974, p. 242). Leaders are best detected through the position they take in space in a group, their eye gaze habits vs. those of other group members, and their central role in the communication network (Sommer, as cited in Weitz).

Aggression and NVB at a distance is important in the context of crowd or mob management strategies. Crowds or mobs are suited to distance NVB decoding strategies, as individual faces may be hard to see or people may be more than 20 feet away from the Soldier. NVB can help Soldiers hypothesize about whether a crowd is merely a physical crowd, characterized by close proximity, or a psychological crowd united by a common interest. Agitated crowds typically display expressive behavior, but are not necessarily violent. In contrast, a mob is generally hostile and aggressive. Mobs may be driven by fright (they are trying to escape a situation), acquisitiveness, aggression, or an intense desire to express an emotion or message. Soldiers encountering mobs should attempt to practice emotional regulation so that they don't overreact and engage in behaviors that escalate tension and violence. In the course of baselining the crowd or mob, Soldiers can take note of the presence of sound/noise; objects, including thrown objects; vehicles both stationary and moving; weapons and explosives; crowd movement and behavior; individuals not acting in harmony with the mob; and use of buildings and/or their destruction (Snyder, Thaw, & Russell, 2000).

Emotion regulation is an important part of being able to decode and react effectively to the expressions of emotion and behaviors of others, especially to emotionally provocative behaviors. It is the process of doing an emotional self-check and taking steps to emotionally modulate so that cognitive resources are available for NVB decoding, effective communication, and skillful decision-making. Training Soldiers in emotion regulation is essential because an emotionally unregulated Soldier is more likely to misinterpret NVB cues or overreact to the cues in emotionally charged situations. Consider the retired Soldier's story below:

> *I went up to a local national.. and we both had weapons, both loaded, and that individual's nonverbal cues and the lack of training in a confrontational situation where he is armed created a potentially dangerous situation using deadly force. He became very angry and came towards me. I read the body language, asked him repeatedly to stop, come no farther, and at that point I had to hold my weapon, my weapon was pointing down and I asked him not to advance any further and then sure enough he kept coming. He had his weapon at a 45 degree angle in my direction. I had to charge a round in my weapon. I dropped a bullet in the chamber and immediately he stopped when I raised my weapon. However, it created an extreme escalation of force that was completely unnecessary. This is in Iraq. A younger American soldier would have shot that guy without a shadow of a doubt. I understood the threat. Younger Soldiers as a whole get very agitated, very anxious, and they take things very personally that they shouldn't. . You have to detach yourself from the situation. There's no training for it at all.*
>
> (Retired Special Forces Soldier interview, 2008, eCrossCulture interview archive)

Emotional regulation training will be embedded in this and other relevant modules. Soldiers suffering from PTSD, however, have been shown by fMRI to be unable to adequately self-regulate and need therapeutic care (Kemp, Williams, Bryant, Barton, Felmingham, et al., 2004).

Deception Detection

Deception can be defined as an "act that is intended to foster in another person a belief or understanding which the deceiver considers false" (Zuckerman, DePaulo, & Rosenthal, 1981, as cited in Bond & Atoum, 2000, p. 385). In military contexts, deception is often related to aggression or otherwise adversarial situations. Deception detection is enhanced by training in nonverbal "hot spots", which are contradictory cues where the verbal does not match the nonverbal or the NVB cues are incongruent with the context. A seminal research investigation on international deception (Bond, Omar, Mahmoud, & Bonser, 1990) found that Jordanians and Americans could detect deceit within their own cultures, but were not successful to the level of statistical significance across cultures. Even within the U.S. culture, the deception detection performance of Americans was only 55%, little better than a 50% chance. This suggests training in this skill set is warranted. A more recent effort offered more encouraging results in terms of observers being able to detect deception behavior quickly and accurately by decoding verbal and nonverbal cues. Participants observed 52 video clips, 26 of which included intentionally deceptive behavior. The sample group was very small (n=5) but their 74% deception detection accuracy was impressive (Vrij, Evans, Akehurst, & Mann, 2004).

Bond and Atoum (2000) presented the results of three research efforts involving Jordanian, Indian, and American participants. The findings demonstrate lies can be detected across cultures whether or not the liar and the detector have a language in common and whether or not the parties are literate. The popular notion that ethnocentrism leads people to believe people from other countries are more likely to be deceptive was debunked in work conducted by Bond and Atoum (2000) who discovered "[p]eople perceive foreigners as more truthful than compatriots, especially when the target can be heard" (p.394).

A confounding issue is that most people around the world believe there exists a set of cues that indicate deception – and yet, they are wrong. These pan-cultural stereotypes and myths include the notions that liars and deceivers avoid eye contact, are fidgety, and are dysfluent in their speech (Bond, 2006). It should be kept in mind that Bond's investigation included a judgment study, which is based on people's thinking and self-report. Two international research investigations involving 75 countries and 43 different languages, reported by the Global Deception Research Team, determined that in the Western perspective – Americans and Europeans – deception "myths" include the notions that liars "avert gaze, touch themselves, move their feet and legs, shift their posture, shrug, and speak quickly" (Global Deception Research Team, 2006). The team concluded that few nonverbal cues actually consistently correlate with deceit (DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, et al., 2003). Their meta-analysis concluded there were pan-cultural stereotypes about deception behavior, with gaze aversion leading the list. Ironically, however, gaze aversion can merely mean social interaction aversion (cf. Givens, 1978). The next most common stereotypes are about nervousness (including self-touching and scratching), speech disturbances, and torso movements.

In an interview with an Army officer (eCrossCulture interview archive), the officer claimed that eye gaze shift to the right was a sign of lying, however, research has not shown this to be true. Cues that are not validated indices of deceptive behavior in untrained observers may lead to inaccurate conclusions. While some theorists argue there are no reliable and valid cues for detecting deception, Ekman, O'Sullivan, Friesen, and Scherer (1991) found that attending to vocal pitch and being able to differentiate spontaneous, positive, emotion-based smiles from smiles of politeness, obligation, deceit, and so forth, improved deception detection accuracy. Voice pitch became higher when people were lying and Zuckerman, DeFrank, Hall, Larrance, and Rosenthal (1979) found that Americans were able to detect compatriots' lies when listening to content-filtered speech sounds. Vocalics, coupled with decoding the type of smile (Duchenne vs. non-Duchenne), increased deception decoding accuracy to 61% in an experimental investigation. Attending to illustrators further increased accuracy (Ekman, 2003). Cues that have proven to be especially useful for detecting deception include paralinguistics, including vocalics, the behavior of human bodies from the neck down, and facial expression of emotion (Anderson, DePaulo, Ansfield, Tickle, & Green, 1999).

Researchers have linked certain NVB cues with deceptive communication and behavior, including head nodding (Mehrabian, 1972, as cited in Givens, 2006); reduced hand movements (Vrij, Akehurst, & Morris, 1997, as cited in Givens) increased dilation of pupils, blinking rates, self-touching and reduced facial expressiveness coupled with increased body movements (Burgoon, Newton, Walther, & Baesler, 1989, as cited in Givens), decreased deictic hand gestures (i.e., gestures that identify time or space location from the perspective of the speaker) and increased metaphoric hand gestures (Caso, Maricchiolo, Bonaiuto, Vrij, & Mann, 2006), and vocalic changes, notably an increase in pitch (DePaulo, Stone, & Lassiter, as cited in Anderson, DePaulo, Ansfield, Tickle, & Green, 1999). These cues may or may not be true for a given individual, however. Wherever possible, Soldiers should baseline the behavior of individual host nationals so they know how the host nationals typically behave when they're feeling comfortable. Ekman stated one should "never reach a final conclusion about whether a suspect is lying or truthful based solely on … behavioral clues to deceit" (Ekman, 1992, as cited in Givens).

One excellent universal way to differentiate between genuine and deliberately created facial expressions of emotion is to understand which facial expressions are difficult to make intentionally (Ekman, 2003). If some of these expressions – and they include expressions depicting anger, sadness, disgust, happiness, and fear – happen in the context of contradictory expressions, they may be signs of "*leakage* of felt emotions, betraying how a person feels even when the person attempts to conceal that information" (Ekman, p. 207-208). Ekman called the muscles that leak emotion the reliable facial muscles and has argued that emotional expressions that include muscle movements that are hard to make intentionally are more reliable. In other words, reliable muscle movement is correlated with trustworthiness (Ekman). Bodies leak emotion as well and in fact tend to leak more than faces (Ekman & Friesen, 1969a, 1974). In a research effort involving making judgments about deceptive videos, Ekman and Friesen found that observers' judgments about deception were more accurate when they used body rather than facial cues (Ekman & Friesen, 1974). Soldiers should of course listen to what is being said whenever possible and look for signs of cohesion, where what is said fits with what is being facially or gesturally expressed (Ekman).

Teaching NVB to Soldiers

Training Soldiers in NVB decoding needs to be jargon-free, based on real world application, accessible, useful, and scaffolded so learning progresses from a simple, straightforward base to increasingly more complex tasks and scenes. The curriculum should be user-friendly, practical, and designed to help Soldiers learn, retain, and be motivated to use their NVB decoding skills. For the seven proposed NVB modules, pedagogical methods will vary according to best delivery mode for the NVB cues being taught. They will include video, photographs, direct teaching, many opportunities to practice, and individually tailored feedback. Culture-specific NVB materials will be embedded in each module as appropriate. Also, operational applications will be built into each module by Soldier mission. There are six user applications: building rapport, defusing situations, scanning and surveillance, crowd control, negotiation, and interviewing or interrogation. Formative and summative evaluation will support the learning and aid instructors in remediation and Go / No Go standards. Formative assessment will mean that a Soldier's progress is assessed and feedback given so the Soldier can improve as the curriculum unfolds. Soldiers receiving poor formative assessments will be given remediation and will be less likely to fail summative assessments as a result. Summative assessment will contribute to a final assessment of the Soldier's performance. Summative assessment results collectively will aid in the overall evaluation of the curriculum design. Several validated standard instruments exist for assessing pre- and post-training NVB skills, including the Profile of Nonverbal Sensitivity (PONS; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979), the Interpersonal Perception Test (IPT; Costanzo & Archer, 1993), Pictures of Facial Affect (Ekman, 1993), the Display rule Assessment Inventory (DRAI; Matsumoto, Yoo, & Hirayama, & Petrova, 2005).

A modular approach to this curriculum was taken for several compelling reasons. First, this allows users to have tailored instruction to their particular mission guidelines. A Soldier who will mainly be serving at check-points and doing house searches might complete a different set of modules than one involved in negotiations and reconstruction efforts. Thus time is saved and what is germane to the individual's situation is taught. Also, this modular approach allows for flexibility in how the Soldier receives instruction. It can be used in a classroom situation with an instructor present or in a stand-alone format via computer. Video, still photography, Soldier testimonial, and direct instruction from NVB experts such as Dr. Matsumoto and Dr. Rensink can be provided to both groups. In-class instruction might be more advantageous as it would provide a much larger screen for viewing video. A larger screen is more appropriate and closer to reality for scene-scanning training and training NVB at a distance.

Also embedded in the curriculum will be individualized tutorials during practice exercises for people taking the stand-alone curriculum. Soldiers taking the curriculum in a group can receive their feedback from instructors trained in NVB and its training. A train-the-trainers class and manual may be provided to accompany the classroom curriculum.

Each module will begin with a pre-test. Instruction can then be tailored to individual Soldiers' initial ability and aptitude. Modules will usually follow with a "direct teach" section, either in-classroom or stand-alone, and be reinforced with easy skill practice that becomes harder (e.g. more complex context and content) as the module unfolds and Soldiers' skills improve.

Feedback will be given through video "talking heads" of experts and/or experienced Soldiers based on Soldiers' responses to exercises and seamlessly embedded formative assessments. Individualized feedback is followed by tailored practice as needed. A go/no go summative evaluation occurs at the end of each module.

Video is an ideal teaching method for NVB because it can provide cultural details, context, and behavior as it unfurls in time. As Archer (1997, p. 84) pointed out, training on photographs alone omits crucial information, including "gestural features such as speed, number of repetitions, degree of motion 'fluidity,' accompanying facial expressions, kinesic behaviors, [and] contextual qualifiers". Where video is not possible, Archer recommended Wylie's (1977) gesture-teaching method, a series of photographs taken with "deliberately slowed shutter speeds that allow the viewer to see the trajectory of a gesture, [including] as a ghostly path the larger movements of the hand" (Archer, p. 84). This is supported by a survey conducted in conjunction with this effort (eCrossCulture, 2008) of a sample of 39 Soldiers with deployment experience. In a question prompting Soldiers to rank order six methods for receiving NVB training, a majority selected "real life video" over photographs, subject matter experts, video with trained actors, and research on the subject. (See Appendix A and Appendix B for NVB decoding needs assessment and Soldier survey results).

A sophisticated interactive computer-based training tool has been designed that can accommodate video, audio, photographs, a searchable data base, revision by instructors, branching exercises with feedback loops individually tailored to each student based on the responses given, formative and summative assessment, and extra mini-lessons and forms of remediation for Soldiers who need more help with a given topic. The software can provide NVB information from any culture in the world; culture-specific NVB modules can be substituted in and out easily. In addition, there is a cross-cultural image and video bank from which appropriate materials are available. Other materials will be produced or obtained as needed.

Best practices in training in NVB will ensure Soldiers are trained with a manageable amount of information in a clear, engaging way designed to accommodate different learning orientations. Soldiers will also need the following for learning and retention of material:

- extensive practice
- individualized feedback and follow-up practice (to correct their errors and reinforce correct learning)
- formative and summative evaluation

An assessment method to be applied during a Phase II pilot of all modules will include the collection of normative data for all proposed items in all modules, an analysis of item difficulty, and the selection of items for the pre- and post-tests that ensures equivalence between them and optimizes item difficulty and overall score reliability.

After the thorough review of the literature, survey, interviews with Soldiers, and conversations with NVB experts, decisions were made as to what will give the Army the most return on investment, will be valid or could be validated, and how to best take cultural considerations in NVB interpretations into account. Though not imperative, it is recommended

Soldiers take this NVB curriculum after they have had other culture general and culture-specific training.

This curriculum gives the Soldier a framework to use skills learned to "read" an individual's nonverbal behavior, especially cross-culturally. It teaches Soldiers to understand the limitations of their assumptions and gives them tools to deal with perceptual and in-group/out group biases that often get in the way of accurate NVB interpretation. By showing how helpful NVB decoding is to relationship-building, safety, mission success, and ultimately saving lives and winning the peace, the training increases propensity to engage in the skills necessary to achieve NVB decoding accuracy. These skills are not just touched upon once but spiral throughout the curriculum in meaningful and captivating ways. For example, Soldier testimonials and video show the disasters that can happen when Soldiers fail to pay attention to NVB cues in the operational environment.

Through these modules, Soldiers will develop ten core skills in NVB decoding. They are:

1. Decoding of macro facial expressions of emotion;
2. Decoding of micro facial expressions of emotion;
3. Decoding of subtle facial expressions of emotion;
4. Understanding gestures and their uses;
5. Decoding emblematic gestures for a specified culture;
6. Baselining and scanning scenes;
7. Baselining people;
8. Detecting change in a scene;
9. Detecting change in a person;
10. Regulating emotions for active observation of people and scenes.

CONCLUSIONS

The present research is an effort to answer three questions that are crucially important to any effort to train Soldiers in decoding universal and cross-cultural NVB. The combination of literature review and SME and Soldier iterative interviews suggests the proposed NVB decoding training would be a benefit in terms of Soldier safety and mission success in cross-cultural contexts. Because most experimental NVB research has been conducted in the U.S., our conclusion is that the results of research efforts on Americans cannot be used to predict cross-cultural NVB cues or functions. However, we note that extensive cross-cultural validated research has been done on facial expressions of emotion and, to a much lesser degree, on a limited number of other NVB functions and cues.

Universality has been thoroughly established for facial expressions of emotion and the function of gestures, including emblematic gestures. Further, research suggests there is a variable degree of universality in the temporal aspect of speech production (e.g., pause frequency, and hesitation and fluency), the function (but not the form) of cultural display rules, body postures expressing emotions (with cultural specificity in the specific manifestations), and some reflex movements responding to strong sensory stimuli (such as offensive odors, bright light, sudden loud noise, and so forth). The presumption in this report is that all NVB that has

not been identified by consensus of SMEs and experimental literature as universal should be considered culture-specific.

It should be noted that universality and cultural specificity are not antithetical or mutually exclusive terms. A NVB cue can be universal, with modest differences in expression across cultures. This is true of facial expressions of emotion, mainly due to display rule differences. Cues that are most likely to be misinterpreted are any cues culturally unfamiliar to the decoder.

In regard to validity and reliability the NVB literature reveals that reliability can exist in the absence of validity. For example, there may be consensus (reliability) that a certain cue indicates deception, whereas validation work demonstrates the cue is actually not a valid sign of deception. There are in fact popular and untrue myths about the meaning of certain cues. It is therefore recommended that specific cues, such as emblematic gestures, undergo validation before being taught to Soldiers.

NVB cues and functions recommended for training in this report were chosen based on what will provide Soldiers with maximum benefits in regard to safety, communication needs, and mission success. More specifically, NVB will support efforts to identify friendly, neutral, and hostile host nationals, including host nationals displaying signs of deception or incipient aggression, and will aid Soldiers in their efforts to influence individuals, groups, and situations.

The seven proposed training modules were developed based on Army needs and existing literature on NVB cues and functions. To this end, the report proposes training in: introduction to the world of NVB, including its utility to Soldiers and propensity to apply acquired KSAs; facial expressions of emotion; gestures, including emblematic gestures; change detection, NVB at a distance of over 20 feet, aggression detection; and deception detection. The proposed curriculum is culture-specific where relevant, e.g., cultural display rules, cultural-specific differences in dress, facial hair, physiognomy, and adornment; culture-specific emblematic gestures; and general awareness of cultural differences in proxemics, vocalics, and haptics. A Soldier trained in most or all of the proposed modules is likely to gain an enhanced ability to understand host national NVB, including both universal and culture-specific cues.

References

Aboudan, R., & Beattie, G. (1996). Cross-cultural similarities: the deep relationship between gestures and speech which transcends language barriers. *Semiotica, 111* (3/4*),* 269-294.

Allen, L. Q. (1995). The effects of emblematic gestures on the development and access of mental representations of French expressions. *The Modern Language Journal, 79*, 4, 521-529.

Anastasi, A. (1986). Evolving concepts of test validation. *Annual Review of Psychology, 37*, 1-16.

Anastasi, A., & Urbina, S. (2006). *Psychological testing* (7th ed.). Englewood Cliffs, NJ: Prentice Hall.

Anderson, D. E., DePaulo, B. M., Ansfield, M. E., Tickle, J. J., & Green, E. (1999). Beliefs about cues to deception: Mindless stereotypes or untapped wisdom? *Journal of Nonverbal Behavior, 23*, 67-89.

Archer, D. (1997). Unspoken diversity: Cultural differences in gestures. *Qualitative Sociology, 20*(1), 79-104.

Bangerter, A. (2004). Using pointing and describing to achieve joint focus of attention in dialogue. *Psychological Science, 15*, 415-419.

Barakat, R. A. (1973). Arabic Gestures. *The Journal of Popular Culture, 6*, 749-792..

Bard, K. A. (2003). Development of emotional expressions in chimpanzees (Pan troglodytes). *Annals of the New York Academy of Sciences, 1000*, 88-90.

Bavelas, J. (1990). Nonverbal and social aspects of discourse in face-to-face interaction. *Text, 10*, 5-8.

Bavelas, J. B., Chovil, N., Lawrie, D., & Wade, D. (1992). Interactive gestures. *Discourse Processes, 15*, 469-489.

Birdwhistell, R. (1970). *Kinesics and context*. Philadelphia: University of Pennsylvania Press.

Bond, C.F. (2006). A world of lies. *Journal of Cross-Cultural Psychology, 37*, 60-74.

Bond, C. F., & Atoum, A.O. (2000). International deception. *Personality and Social Psychology Bulletin, 26*(3), 385-395.

Bond, C. F., Omar, A., Mahmoud, A., & Bonser, R. N. (1990). The miscommunication of deception: An adaptive perspective. *Journal of Experimental Social Psychology, 21*, 331-345.

Boucher, J. D., & Carlson, G. E. (1980). Recognition of facial expression in three cultures. *Journal of Cross-cultural Psychology, 11*, 263-280.

Bowlby, J. (1969). *Attachment and loss: Vol. 1, Attachment*. London: Hogarth.

Brody, L. R., & Hall, J. A . (2004). Gender, emotion, and expression. In Lewis, M., & Haviland-Jones, J. M. (Eds.), *Handbook of emotions* (2nd ed.) (pp. 338-349). New York: Guilford Press.

Brookes, H. (2004). A repertoire of South African quotable gestures. *Journal of Linguistic Anthropology, 14*, 186-224.

Brown, T. M., & Miller, C. E. (2000). Communication networks in task-performing groups. *Small Group Research 31*(2), 131-157.

Buck, R. (1984). *The communication of emotion.* New York: Guilford Press.

Burrows, A. M., Waller, B. M., Parr, L. A., & Bonar, C. J. (2006). Muscles of facial expression in the chimpanzee (Pan troglodytes): Descriptive, comparative, and phylogenetic contexts. *Journal of Anatomy, 208*, 153-167.

Calero, H. H. (2005). *The power of non-verbal communication*. Aberdeen, WA: Silver Lake Publishing.

Camurri, A., Lagerlof, I., & Volpe, G. (2003). Recognizing emotion from dance movement: Comparison of spectator recognition and automated techniques. *International Journal of Human-Computer Studies, 59*, 213-225.

Caso, L., Maricchiolo, F., Bonaiuto, M., Vrij, A., & Mann, S. (2006). The impact of deception and suspicion on different hand movements. *Journal of Nonverbal Behavior, 30*, 1-19.

Caspi, A., Beutter, B. R., & Eckstein, M. P. (2004). The time course of visual information accrual guiding eye movement decisions. *Proceedings of the National Academy of Sciences USA, 101*(35), 13086-13090.

Chen, G.-M. (1995). Differences in self-disclosure patterns among Americans versus Chinese. *Journal of Cross-Cultural Psychology, 26*, 84-91.

Chovil, N. (1989). *Communicative functions of facial displays in conversation*. Unpublished doctoral dissertation, University of Victoria, Victoria, BC.

Clark, H. H. (1996). *Using language*. Cambridge: Cambridge University Press.

Cleeremans, A. (1993). *Mechanisms of implicit learning: Connectionist models of sequence processing*. Cambridge: MIT Press.

Cole, J. K. (Ed.). (1972). *Current theory and research in motivation*: *Vol. 19*. Lincoln, NE: University of Nebraska Press.

Costanzo, M., & Archer, D. (1993). Interpreting the expressive behavior of others: The interpersonal perception task. *Journal of Nonverbal Behavior, 13*, 225-245.

Coulson, M. (2004). Attributing emotion to static body postures: Recognition accuracy, confusions, and viewpoint dependence. *Journal of Nonverbal Behavior, 28*, 117-139.

Creider, C. A. (1977). Towards a description of East African gestures. *Sign Language Studies, 14*, 1-20.

Dalgleish, T., & Power, M. (1999). *Handbook of cognition and emotion*. New York: John Wiley & Sons Ltd.

Darwin, C. (1872). *The expression of the emotions in man and animals*. London: Murray.

De Meijer, M. (1989). The contribution of general features of body movement to the attribution of emotions. *Journal of Nonverbal Behavior, 13*, 247-268.

DePaulo, B. M., Lindsay, J. J., Malone, B. E., Muhlenbruck, L., Charlton, K., & Cooper, H. (2003). Cues to deception. *Psychological Bulletin, 129*, 74-118.

de Waal, F. B. M. (2003). Darwin's legacy and the study of primate visual communication. In P. Ekman, J. Campos, R. J. Davidson & F. B. M. De Waal (Eds.), *Emotions inside out: 130 years after Darwin's The Expression of Emotion in Man and Animals* (pp. 7-31). New York: New York Academy of Sciences.

Dosher, B. A., & Lu, Z. L. (1999). Mechanisms of perceptual learning. *Vision Research 39*(19), 3197-3221.

Dovidio, J. F., & Ellyson, S. L. (1982). Decoding visual dominance: attributions of power based on relative percentages of looking while speaking and looking while listening. *Social Psychology Quarterly 45*(2), 106-113.

Earley, P. C. (2004). The elusive cultural chameleon: cultural intelligence as a new approach to training the global manager. *Academy of Management Learning and Education, 3*, 110-115.

Eckstein, M. P., Pham, B. T., & Shimozaki, S. S. (2004). The footprints of visual attention during search with 100% valid and 100% invalid cues. *Vision Research, 44*(12), 1193-1207.

Efron, D. (1941). *Gesture and environment*. Morningside Heights, NY: King's Crown Press.

Efron, D. (1972). *Gesture, race and culture*. New York: King's Crown.

Ekman, P. (1972). Universals and cultural differences in facial expressions of emotion. In J. Cole (Ed.), *Nebraska Symposium on Motivation, 1971*. Lincoln: University of Nebraska Press, 207-283.

Ekman, P. (1976). Movements with precise meaning. *Journal of Communication, 26*, 14-26.

Ekman, P. (1979). Facial signs: Facts, fantasies, and possibilities. In T. Sebeok (Ed.), *Sight, sound, and sense* (pp. 124-156). Bloomington, IN: Indiana University Press.

Ekman, P. (1992). Facial expression of emotion: New findings, new questions. *Psychological Science, 3*, 34-38.

Ekman, P. (1997). Should we call it expression or communication? *European Journal of Social Sciences, 10*, 333-359.

Ekman, P. (2002). *MicroExpression Training Tool (METT).* University of California, San Francisco.

Ekman, P. (2003). Darwin, deception, and facial expression. *New York Academy of Sciences, 1000*, 205-221.

Ekman, P., Brattesani, K. A., O'Sullivan, M., & Friesen, W. V. (1979). Does image size affect judgments of the face? *Journal of Nonverbal Behavior, 4*(1), 57-61.

Ekman, P., & Friesen, W. V. (1969a). Nonverbal leakage and clues to deception. *Psychiatry, 32*, 88-105.

Ekman, P., & Friesen, W. V. (1969b). The repertoire of nonverbal behavior: Categories, origins, usage, and coding. *Semiotica, 1*, 49-98.

Ekman, P., & Friesen, W. V. (1972). Hand movements. *Journal of Communication, 22*, 353-374.

Ekman, P., & Friesen, W. V. (1974). Detecting deception from body or face. *Journal of Personality and Social Psychology, 29*, 288-298.

Ekman, P., & Friesen, W. V. (1975). *Unmasking the face: A guide to recognizing emotions from facial clues*. Englewood Cliffs, NJ: Prentice Hall.

Ekman, P., & Friesen, W. V. (1982). Felt, false and miserable smiles. *Journal of Nonverbal Behavior, 6*, 238-252.

Ekman, P., & Friesen, W. V. (1986). A new pan-cultural facial expression of emotion. *Motivation and Emotion 10*(2), 159-168.

Ekman, P., Friesen, W. V., O'Sullivan, M., & Scherer, K. (1980). Relative importance of face, body, and speech in judgments of personality and affect. *Journal of Personality and Social Psychology, 38*, 270-277.

Ekman, P., O'Sullivan, M., Friesen, W. V., & Scherer, K. R. (1991). Face, voice, and body in detecting deceit. *Behavioral Science 15*(2), 125-135.

Elfenbein, H. A. (2006). Learning in emotion judgments: Training and the cross-cultural understanding of facial expressions. *Journal of Nonverbal Behavior, 30*, 21-36.

Elfenbein, H. A., & Ambady, N. (2002a). Is there an in-group advantage in emotion recognition? *Psychological Bulletin, 128*, 243-49.

Elfenbein, H. A., & Ambady, N. (2002b). On the universality and cultural specificity of emotion recognition: A meta-analysis. *Psychological Bulletin*, *128,* 203-35.

Elfenbein, H. A., & Ambady, N. (2003). Universals and cultural differences in recognizing emotions. *Current Directions in Psychological Science 12*(5), 159–164.

Ellyson, S. L., & Dovidio, J. F. (1985). *Power, dominance, and nonverbal behavior*. London: Springer-Verlag.

Feghali, E. (1997). Arab cultural communication patterns. *International Journal of Intercultural Relations, 21,* 345-378.

Fiedler, K. (Ed.). (2007). *Social communication*. New York: Psychology Press.

Gerwing, J., & Bavelas, J. B. (2004). Linguistic influences on gesture's form. *Gesture, 4*, 157-195.

Gilbert, D. T., & Krull, D. S. (2002). Cross-cultural patterns in emotion recognition: Highlighting design and analytic techniques. *Emotion, 2*, 75-84.

Givens, D. B. (1978). Greeting a stranger: Some commonly used nonverbal signals of aversiveness. *Semiotica, 22*(3/4), 351-367.

Givens, D. B. (2006). *The nonverbal dictionary of gesture, signs, & body language cues*. Spokane: Center for Nonverbal Study Press.

Global Deception Research Team. (2006). A world of lies. *Journal of Cross-cultural Psychology 37*(1), 60-74.

Graham, J. A., & Argyle, M. (1975). A cross-cultural study of the communication of extra-verbal meaning by gesture. *International Journal of Psychology, 10*, 57-67.

Griffin, I. C. & Nobre, A. C. (2003). Orienting attention to locations in internal representations. *Journal of Cognitive Neuroscience, 15*(8), 1176-1194.

Gross, M. M., Gerstner, G. E., Koditschek, D. E., Fredrickson, B. L., & Crane, E. A. (n.d.). *Emotion recognition from body movement kinematics.* Retrieved from http://sitemaker.umich.edu/mgrosslab/files/abstract.pdf.

Hall, E. T. (1984). *The dance of life*. Garden City, New York: Anchor-Doubleday.

Hess, U., & Philippot, P. (Eds). (2007). *Group dynamics and emotional expression*. New York: Cambridge University Press.

Johnson, H. G., Ekman, P., & Friesen, W. V. (1975). Communicative body movements: Body emblems. *Semiotica, 15,* 335-353.

Kemp, A. H., Williams, L. M., Bryant, R. A., Barton, M., Felmingham, K. L., Gordon, E., et al. (2004). Implicit perception of fear signals: An fMRI investigation of PTSD. *Australian Journal of Psychology, 56*, 45ff.

Kendon, A. (1981). A geography of gesture. *Semiotica, 37*, 129-163.

Kendon, A. (1992). Some recent work from Italy on quotable gestures (emblems). *Journal of Linguistic Anthropology, 2*, 92-108.

Kendon, A. (2004). *Gesture: Visible action as utterance*. Cambridge: Cambridge University Press.

Kleinsmith, A., De Silva, P., & Bianchi-Berthouze, N. (2006). Cross-cultural differences in recognizing affect from body posture. *Interacting with Computers, 18*, 1371-1389.

Kring, A. M., & Gordon, A. H. (1998). Sex differences in emotion: Expression, experience, and physiology. *Journal of Personality and Social Psychology, 74*(3), 686-703.

Kudoh, T., & Matsumoto, D. (1985). Cross-cultural examination of the semantic dimensions of body postures. *Journal of Personal and Social Psychology, 48*, 1440-46.

Liddell, B. J., Brown, K. J., Kemp, A. H., Barton, M. J., Das, P., Peduto, A., et al. (2005). A direct brainstem-amygdala-cortical 'alarm' system for subliminal signals of fear. *NeuroImage, 24*(1), 235-243.

Lyman, S. & Scott, M.B. (1967). Territoriality: A neglected sociological dimension. *Social Problems, 15*, 236-249.

Manusov, V., & Patterson, M. (Eds.). (2006). *Handbook of nonverbal communication*. Thousand Oaks, CA: Sage.

Matsumoto, D. (1989). Face, culture, and judgments of anger and fear: Do the eyes have it? *Journal of Nonverbal Behavior, 13*(3), 171-188.

Matsumoto, D. (1992). American-Japanese cultural differences in the recognition of universal facial expressions. *Journal of Cross-Cultural Psychology, 23*, 72-84.

Matsumoto, D. (1993). Ethnic differences in affect intensity, emotion judgments, display rule attitudes, and self-reported emotional expression in an American sample. *Motivation and Emotion, 17*, 107-123.

Matsumoto, D., & Ekman, P. (1989). American-Japanese cultural differences in intensity ratings of facial expressions of emotion. *Motivation and Emotion, 13*, 143-157.

Matsumoto, D., Keltner, D., Shiota, M., Frank, M., & O'Sullivan, M. (in press). Facial expressions of emotions. In Lewis, M., Haviland, J., and Feldman-Barrett, L. (Eds.), *Handbook of emotion*. New York: Guilford Press.

Matsumoto,D., Wallbott, H. G., & Scherer, K. R. (1994). Emotion in intercultural communication. In Asante, M. K., Gudykunst, W. B., & Newmark, E. (Eds.). *Handbook of international and intercultural communication* (pp. 225-246). Newbury Park, CA: Sage Publications, Inc.

Matsumoto, D., Yoo, S. H., Hirayama, S., & Petrova, G. (2005). Development and Validation of a Measure of Display Rule Knowledge: The Display Rule Assessment Inventory. *Emotion, 5*(1), 23-40.

Matsumoto, D., Yoo, S. H., Alexandre, J., Altarriba, J., Anguas-Wong, A. M., Arriola, M., et al. (2006). Universal effects of contexts of display rules for emotional behaviors. *Manuscript currently submitted for publication.*

McNeill, D. (1992). *Hand and mind: What gestures reveal about thought*. Chicago: University of Chicago Press.

Molinsky, A. L., Krabbenhoft, M. A., Ambady, N., & Choi, Y. S. (2005). Cracking the nonverbal code: Intercultural competence and gestures recognition across cultures. *Journal of Cross-Cultural Psychology, 36*(3), 380-395.

Mondy, S., & Colthart, V. (2000). Detection and identification of change in naturalistic scenes. *Visual Cognition, 7*(1-3), 281-296.

Nichols, K. A., & Champness, B. G. (1971). Eye gaze and the GSR. *Journal of Experimental Social Psychology, 7*, 623-626.

Nierenberg, G. I., & Calero, H. H. (2001). *How to read a person like a book*. New York: Simon and Schuster, Inc.

Nisbett, R. E. (2003). *The geography of thought: How Asians and Westerns think differently and why we think the way we do*. New York: The Free Press.

Noesjirwan, J. (1978). A rule-based analysis of cultural differences in social behavior: Indonesia and Australia. *International Journal of Psychology, 13*, 305-316.

Ostermeier, T. H. (1997, March). Gender, nonverbal cues, and intercultural listening: Conversational space and hand gestures. Paper presented at the 18th annual meeting of the International Listening Association, Mobile, AL.

Pacton, S., Perruchet, P., Fayol, M., & Cleeremans, A. (2001). Implicit learning out of the lab: The case of orthographic regularities. *Journal of Experimental Psychology: General, 130*, 401-426.

Pika, S., Nicoladis, E., & Marentette, P. F. (2006). A cross-cultural study on the use of gestures: Evidence for cross-linguistic transfer. *Bilingualism: Language and Cognition, 9*, 319-327.

Pliner, P., Krames, L., & Alloway, T. (1975). *Nonverbal communication of aggression: Vol. 2.* New York: Plenum Press.

Poortinga, Y. H., Schoots, J. H., & Van de Koppel, N. M. H. (1993). The understanding of Chinese and Kurdish emblematic gestures by Dutch Subjects. *International Journal of Psychology 28*(1), 31-44.

Reinagel, P., & Zador, A. M. (1999). Natural scene statistics at the centre of gaze. *Network, 10*(4), 341-350.

Renninger, L. W.,Verghese, P., & Coughlan, J. (2007). Where to look next? Eye movements reduce local uncertainty. *Journal of Vision, 7*(3), 1-17.

Rensink, R. A. (2000). Seeing, sensing, and scrutinizing. *Vision Research, 40*, 1469-1487.

Rensink, R. A. (2002). Change detection. *Annual Review of Psychology, 53*, 245-77.

Rensink, R. A. (2004). Visual sensing without seeing. *Psychological Science, 15*(1), 27-32.

Rensink, R. A., O'Regan, J. K., & Clark, J. J. (1997). To see or not to see: The need for attention to perceive changes in scenes. *Psychological Science, 8*, 368-373.

Rosenthal R., Hall, J. A., DiMatteo, M. R., Rogers, P. L., & Archer, D. (1979). *Sensitivity to nonverbal communication: The PONS test*. Baltimore: The Johns Hopkins University Press.

Rossing, B. E., & Long, H. B. (1981). Contributions of curiosity and relevance to adult learning motivation. *Adult Education Quarterly, 32*, 25-36.

Roth, W.-M. (2001). Gestures: Their role in teaching and learning. *Review of Educational Research, 71*, 365-392.

Russell, J. A. (1995). Facial expressions of emotion: what lies beyond minimal universality? *Psychological Bulletin, 118*, 379-391.

Russell, J. A. (1994). Is there universal recognition of emotion from facial expression? A review of cross-cultural studies. *Psychological Bulletin, 115*, 102-41.

Safadi, M., & Valentine, C. A. (1990). Contrastive analyses of American and Arab nonverbal and paralinguistic communication. *Semiotica, 82*, 269-292.

Scherer, K. R., & Wallbott, H. G. (1994). Evidence for universality and cultural variation of differential emotion response patterning. *Journal of Personality and Social Psychology, 66*(2), 310-328.

Schimmack, U. (1996). Cultural influences on the recognition of emotion by facial expressions. *Journal of Cross-Cultural Psychology, 27*, 37-50.

Schmid, M. M., Hall, J. A., Murphy, N. A., & Colvin, R. C. (2003). Judging assertiveness. *Philosophy, Sociology & Psychology, 2*, 731-744.

Scott, P. A., & Charteris, J. (1986). Gesture identification: Southern African ratings compared with European responses. *International Journal of Psychology, 21*, 753-768.

Shaarani, A. S., & Romano, D.M. (n.d.). *Perception of emotions from static postures*. Retrieved December 1, 2007, from http://www.shef.ac.uk/dcs/research/groups/graphics

Simons, D. J., & Levin, D. T. (1997). Change blindness. *Trends in Cognitive Sciences, 7*, 261-267.

Smith, P. L., Ratcliff, R., & Wolfgang, B. J. (2004). Attention orienting and the time course of perceptual decisions: Response time distributions with masked and unmasked displays. *Vision Research, 44*, 1297-1320.

Snyder, H., Thaw, D., & Russell, A. (2000). *Crowd management*. Salemburg, NC: North Carolina Justice Academy.

Tatler, B. W. (2007). The central fixation bias in scene viewing: Selecting an optimal viewing position independently of motor biases and image feature distributions. *Journal of Vision, 7*(14), 1-17.

Tatler, B. W., Addeley, R. J., & Gilchrist, I. D. (2005). Visual correlates of fixation selection: Effects of scale and time. *Vision Research, 45*, 643-659.

Tiedens, L. Z., & Fragale, A. R. (2003). Power moves: Complementarity in dominant and submissive nonverbal behavior. *Journal of Personality and Social Psychology, 84*, 558-568.

Van Hemert, D. A., Poortinga, Y. H., & Van de Vijver, F. J. R. (2007). Emotion and culture: A meta-analysis. *Cognition and Emotion*, *21*, 913-943.

Vick, S.-J., Waller, B. M., Parr, L. A., Pasqualini, M. S., & Bard, K. A. (2007). A cross species comparison of facial morphology and movement in humans and chimpanzees using the Facial Action Coding System (FACS). *Journal of Nonverbal Behavior, 31*, 1-20.

Vrij, A. (2004). Why professionals fail to catch liars and how they can improve. *Legal and Criminalogical Psychology, 9*(2), 159-183.

Vrij, A., Evans, H., Akehurst, L., & Mann, S. (2004). Rapid judgments in assessing verbal and nonverbal cues: Their potential for deception researchers and lie detection. *Applied Cognitive Psychology*, *18*(3), 283-296.

Waxer, P. H. (1985). Video ethology: Television as a data base for cross-cultural studies in nonverbal displays. *Journal of Nonverbal Behavior, 9*, 111-120.

Weitz, S. (Ed.). (1974). *Nonverbal communication*. New York: Oxford University Press.

Werner, S., & Thies, B. (2000). Is "change blindness" attenuated by domain-specific expertise? An expert-novices comparison of change detection in football images. *Visual Cognition, 7*, 163-173.

Wylie, L. (1977). Beaux gestes: A guide to French body talk. New York: Dutton.

Zuckerman, M., DeFrank, R. S., Hall, J. A., Larrance, D. T., & Rosenthal, R. (1979). Facial and vocal cues of deception and honesty. *Journal of Experimental Social Psychology*, *15*, 378-396.

Appendix A

NVB Decoding Needs Assessment

Needs assessment for this Phase I effort included a *survey of Army officers* of different ranks serving on Transition Teams who had returned from foreign deployments such as in Iraq and Afghanistan and from *retired Soldier* populations. (See survey results in Appendix B). While the survey was too small (n=39) to provide broad data, the information gathered is useful. The consensus among respondents was that pre-deployment training in NVB was either lacking, limited, or focused primarily on simple phrases, gestures, and/or cultural generalities. 20 of the 21 respondents stated that NVB knowledge and skills will be very useful to Army Soldiers deployed overseas.

Most Soldiers reported that while overseas they were forced to interpret cross-cultural NVB through guesswork. Surveyed about what cues they found confusing, they replied: facial expressions, speech volume and tone, hand gestures (especially emblems), and eye contact. They considered the stakes related to decoding NVB to be very high. One Soldier wrote, "*If you messed that up, you could be dead quick. You learned to know and watch for actions or omissions on their parts, anything and everything was a clue to what was going on*." Another wrote, "*This job is all about communication. Obviously, anything that helps aid communication and understanding will be beneficial*." Finally, several respondents on a statement which read "I think nonverbal interpretive skills could make the difference between life and death in some mission contexts" and required a response from 1 (strongly disagree) to 5 (strongly agree) commented "*Can I say '6'*?"

A revealing finding in the survey responses was a lack of concordance about whether American and host national (mainly Iraqi) NVB were different. 50% of Transition Team respondents said that facial expressions were "very different" or "somewhat different" between the two cultures. The other 50% said the two groups were not different. In regard to hand/arm gestures, in contrast, over 95% of respondents agreed that the two cultures' gestures were different. Asked about specific emblems (*stop, slow down, go away, it's safe*, etc.), Soldiers were split in their responses about whether these emblems were the same or different in the two cultures. Whether they were right or wrong – and research on facial emotion expression and emblems reveals that many of them were wrong – many of them were highly confident that they were right. The discrepancy between accuracy and confidence is one of many reasons why there's a pressing need to train gestural emblems to Soldiers deploying overseas and to train Soldiers in how to decode universal facial emotions along with culture-specific modifications to these expressions.

Asked what NVB they would like to learn, Soldiers expressed interest in a broad range of NVB cues and functions. They expressed particular interest in learning about hand gestures, deception and threat detection, and understanding group dynamics.

Appendix B

NVB Decoding Survey Results

The survey is provided below and on following pages. Summarized responses are interleaved within the text in **bold face.** The survey was administered to five distinct pools and subject comments use identifiers preceded by the pool number. The survey text begins immediately below:

Information Regarding Experiences with Host-Nationals' Nonverbal Behavior

We are obtaining information for interpreting nonverbal behavior in host-nationals for the Army Research Institute (ARI). Examples of nonverbal behavior include a person's facial expressions, hand and arm gestures, body posture, gaze, tone or volume of voice, and how they are positioned relative to people and objects. We would like you to complete a survey regarding your experiences with your host-national counterpart (if you had one) and host-national civilians while on deployment. The information you provide will allow us to design an effective curriculum for training Soldiers to interpret host-national nonverbal behavior. Please do not include interpreters or coalition members from other countries when considering your answers. Thank you for your participation. Your responses will be kept anonymous**.**

Survey questions begin on next page.

INSTRUCTIONS: The purpose of this questionnaire is to describe your experiences with nonverbal behavior among host-nationals. *These experiences should not include an interpreter's or coalition member's nonverbal behavior*. Thus, as you answer the questions, focus specifically on experiences you had while deployed with your host-national counterpart (if you had one) and among host-national civilians. Also, if you place an X before "Other" for any of your answers please specify your answer. Before we get started, however, we would like to obtain some background information on you.

1. Rank:

Rank	Count
Sergeant First Class	**3**
Staff Sergeant	**3**
Master Sergeant	**6**
Captain	**8**
Major	**6**
LTC	**2**
Chief	**1**
Sergeant	**4**
Other	**6**
Total	**39**

2. Sex *(Place an X by the one that applies):*

Male	**38**	Female	**1**

3. What was your position on the transition team? *(Place an X by the one that applies)*

5	Team Chief	**2**	Communications NCO
2	Deputy Team Chief	**1**	Security
1	Staff/Maneuver Officer	**2**	Medic
	FA Effects Officer		Criminal Intelligence Specialist
	FA Effects NCO		Civilian Advisor
1	Intelligence Officer		Personnel Advisor
2	Intelligence NCO	**2**	Logistics Advisor
2	Logistics Officer		Linguist
1	Logistics NCO	**18**	Other:

4. Service *(Place an X by the one that applies)**:***

33	Army	**2**	Navy
2	Air Force	**2**	Marines
	Other		

5. Component *(Place an X by the one that applies)**:***

28	Active	**3**	Guard
8	Reserves		Other

6. Where were you most recently deployed? *(Place an X by the one that applies)*

26	Iraq	**4**	Afghanistan
9	Other: Bosnia, Korea, Kuwait, Germany		

7. What was the year of your last deployment? *(Place an X by the one that applies)*

25	2007	**2**	2006
3	2005		2004
	2003		2002

8. Which region of the country were you located in?

The responses for this question will not be provided.

9. Have you been deployed to this host country before? *(Place an X by the one that applies)*

Yes	**11**	No	**28**

9b. If yes, how many times have you been to this host country (include this deployment):

2	**12**	3	**0**
4	**0**	5	**0**

10. Did you receive any training in interpreting nonverbal behavior before or during your tour? *(Place an X by the one that applies)*

Yes	**19**	No	**20**

10b. If yes, what kind of training did you receive? *(Place an X by the one that applies)*

16	Classroom	**3**	Self-guided instruction
5	Other		

10c. What did you learn?

Subject 1-3: **Basic stuff, gestures.**
Subject 1-4: **Not a thing. It was mostly a team building event and didn't do much in the way of true training.**
Subject 1-5: **Nonverbal expressions such as lifting the chin to mean "no" and holding hand in front of your body with fingers together and pointed upwards to mean "stop." Training also included what not to do (OK symbol).**
Subject 1-6: **Nonverbal gestures/body language.**
Subject 1-7: **The basic hand gestures.**
Subject 1-8: **Iraqis will cluck their tongues for no, or just lean their heads back.**
Subject 1-9: **To not be as aggressive and to be patient with their culture.**
Subject 1-10: **Learned what hand signals were common and which ones are insults. Familiarized myself with common traits in the area, such as threatening eye contact, man kiss, greeting gestures, etc…**
Subject 1-11: **Besides the obvious fact that Americans are different than Iraqis, Iraqis will tell you things in confidence that may or not pertain to the subject at hand. Having someone of lesser rank interrupt their conversation is not a problem. They may watch the TV if they find what your are saying is boring or too hard for them to accomplish.**
Subject 1-12: **Very little, poorly conducted, very superficial training.**
Subject 1-13: **Phrases and gestures, simple commands.**
Subject 1-17: **Basic communication techniques and how to interpret nonverbal actions. Also, how Iraqis normally communicate, including typical nonverbal cues.**
Subject 1-18: **Basic cultural awareness and some Arabic**
Subject 1-20: **A lot about the Arabic/Iraqi culture and how to make friends first before getting seriously involved into your advisory role.**
Subject 1-24: **During our predeployment training we learned several things about nonverbal behavior when dealing with our IA counterparts. We learned about hand gestures especially pointing fingers and such.**
Subject 2-1: **Just cultural orientation, some discussion of NVB. Not much to speak of. Some of the things we got were wrong. Thumbs up wasn't middle finger.**
Subject 3-3: **Keep an eye on people that were acting suspicious, walking, stopping, taking notes, conversing on the telephone while observing.**
Subject 5-3: **Posturing, hand gestures to use and not to use.**
Subject 5-5: **Don't freak out when you see Arabs holding hands or if they hold your hand.**

11. How much contact did you have with your host-national counterpart while deployed? *(Place an X by the one that applies)*

23	Daily	**6**	Several times a week
	A few times a month	**1**	Very infrequently

12. How much contact did you have with host-national civilians while deployed? *(Place an X by the one that applies)*

Daily	**21**	Several times a week	**8**
A few times a month	**5**	Very infrequently	**4**

13. While on deployment, did you attempt to interpret host-national nonverbal behavior in order to understand their intentions, behavior, or point of view?
(Place an X by the one that applies)

Yes	**39**	No	**0**

14. For what kinds of interactions would interpreting nonverbal behavior have been useful? *(Place an X by the one that applies)*

Professional	**2**	Social	**0**
Professional & Social	**35**	None	

15. What sorts of nonverbal behavior did you make note of or attempt to interpret? *(Place an X by <u>ANY</u> that apply)*

facial expressions	**36**	eye gaze	**29**
how close a person stands to you	**28**	hand gestures	**34**
group behavior	**30**	appearance of deception	**29**
tone of voice	**34**	volume of speech	**27**

Other:

Subject 1-2: **Where he stood in relationship to me when with a group. If he stood closer to me when with other Iraqis, he typically was looking for me to back him up/protect him. If equidistant, he seemed comfortable I'd watch his face. If he was closer to the Iraqi commander or other officers, he was worried.**

"Man-kiss." While making Americans uncomfortable, it was a gauge for me in telling if I was accepted - not necessarily trusted. Also, the number of kisses on the cheeks. I had very few worries with those that kissed me three times.

Subject 1-12: **Where in a group a person stood/sat.**
Subject 1-15: **Establishment of eye contact by host national or lack thereof.**
Subject 1-19: **Touching your arm.**
Subject 1-20: **Nothing really after being with my counterparts for couple of months.**
Subject 3-1: **The manner in which they touched each other. Highly homosexual region. Don't consider women of any value. Very hands on. Learning to adjust and that's part of their culture.**

15b. What nonverbal behavior was confusing to you?

Subject 1-1: **It was difficult to read facial expressions. It was hard to determine if they were sincere in what they were saying or just trying to appease me.**
Subject 1-3: **None that I remember.**
Subject 1-4: **People are people. If you can live in a city in the US you can do this NON verbal stuff anywhere in the world.**
Subject 1-5: **None**
Subject 1-6: **Volume of speech.**
Subject 1-8: **You are just trying to understand the Iraqis the best that you can so you can become better at doing your job. As a NPTT we worked and lived with our counterparts and I needed to know that I was safe and would be taken care of by both my team and my Iraqi's. They are the reason that you lived or died at times. Knowing as much about them as you could, could help you to stay alive and that was all that matters over there. Confusing nonverbal cues occurred when the BN CDR was intentionally leaving his own people in the dark and we got used to that after the first month, after that, we had no problem interpreting body language. You knew who your friends were and weren't just by saying hello.**
Subject 1-10: **None are confusing when we are exposed to them and their purpose.**
Subject 1-11: **Facial expressions because of the language barrier .**
Subject 1-12: **Initially, volume of speech was quite confusing. In the Iraqi culture, as a general statement, their volume is much louder and dynamic and does not necessarily equate to anger or "real" disagreement.**
Subject 1-13: **Speech tone not matching actual words spoken.**
Subject 1-14: **The practice of putting their hands on your shoulder/holding your hand during conversation. In group conversation their behavior is quite different, even where you have already established rapport. They never seem to raise their voice, even during heated conversation while talking to you.**
Subject 1-15: **Eye contact was confusing at times, partially due to lack of commitment to engagement.**
Subject 1-16: **Hand signs.**
Subject 1-17: **I would say most of it at first, wondering if nonverbal actions by Iraqis are similar to Americans. After being there a while I found that nonverbal clues were mostly the same as when Americans use them.**
Subject 1-18: **Tone of voice and good behaviors**
Subject 1-19: **Shaking head for the affirmative and lifting the head up quickly for "no."**
Subject 1-23: **First, it was the tone of the voice when they interacted with each other. They are very loud and demonstrative. So, what you think is anger or an argument is normal conversation.**
Subject 1-24: **Tone of voice because to us loud tones of voice mean something is wrong where as with my counterparts it is just part of their culture.**
Subject 1-25: **In Arab culture, showing the soles of your feet would be considered unacceptable. However, the soles of the feet are not considered unacceptable with Kurdish**

people. The Kurdish people do not consider themselves Arab and do not relate to many of the Arab customs.

Subject 2-1: **None.**

Subject 2-2: **Tone of speech.**

Subject 3-1: **Manner in which they touched each other. It was a highly homosexual culture.**

Subject 3-3: **Either they were telling you you were number one or giving you the finger.**

Subject 3-4: **The way they interacted with the women. The women there they would just keep them away. Bosnians were aggressive to Bosnian women. They'd just hit them out in the open.**

Subject 3-5: **All of them at first. The most confusing were their hand gestures when they talk. Their hands are going crazy and kind of distracting and took a while to get used to.**

Subject 3-6: **Professionally they <Koreans> seemed pretty Westernized. Personally, their demeanor is borderline subservient or docile. Their NVB could be perceived as a lack of confidence or meek when in actuality it is anything but.**

Subject 3-7: **The hand gestures. They like to talk with their hands a lot, they'd talk with each other, they wouldn't say anything, they'd just use hand gestures. They're loud people, they're happy people, when I talk I try to talk in a normal voice, they use more enthusiasm.**

Subject 3-8: **Pace and volume of speech as well as group reactions to things… were they looking to someone who was in charge, were they independent… the group dynamic was the hardest.**

Subject 5-1: **Proximity, how close they get to you.**

Subject 5-3: **the tone, the volume, how close they stood to me**

Subject 5-4: **hand gestures and posture, for example, we were introduced to a group of men, we had an interpreter, they were kind of stand-offish they were further than normal, as soon as we got talking they got really, really close… they were almost invading our comfort zone. They sat really close to me and it got really uncomfortable.**

Subject 5-6: **body posture.**

15c. Why did you find this behavior confusing?

Subject 1-1: **It was expressionless at times and difficult to read or I just wasn't picking up on subtle cues.**

Subject 1-4: **The lack of value of basic human rights for a religious people.**

Subject 1-6: **Wasn't really confused by it, it just took some getting used to.**

Subject 1-8: **If you messed that up, you could be dead quick. You learned to know and watch for actions or omissions on their parts, anything and everything was a clue as to what was going on, if you paid attention, you could better prepare for what was about to happen. Regarding Question 19… Any bit helps. Should it be a requirement? I think not. Nonverbal body language is something that is probably best learned on the fly. You have guys who will pay attention to that sort of stuff and guys that won't. Teaching it before hand might be a nice class used to introduce you to Iraqi ways.**
The Iraqi way to say "come here" is the right hand palm down and it waves back and forth in between themselves and the party they are trying to get to move. As an American, I found this way demeaning, much the same way the Iraqis found my way, palm facing me and waving back and forth just as demeaning.
Nonverbal behavior should be learned on the individuals that you need to be concerned with. Our Iraqi BN CDR had different mannerisms compared to the BDE CDR, like we Americans differ, so do they.

Subject 1-10: **Some gestures are only confusing because they are different from our culture. If briefed or exposed prior to deployment the transition and learning is less difficult.**

Subject 1-11: **Sometimes a wink or gnashing of teeth meant nothing. They would show anger or disgust at a situation but it was usually only for show so you didn't know if you should act on it or take it seriously.**

Subject 1-12: **Coming from a background of a German and Norwegian immigrant grandparents/great grandparents, I was not used to such loudness and what seemed to me overt passion in an almost daily manner. This type of display was usually reserved for an unusual occasion when one was very upset or very emotional.**

Subject 1-13: **It is incongruent (i.e. speaking softly with a smile on while saying one wants to kill.)**

Subject 1-14: **I did not understand the gestures behind the behaviors. I sometimes understood/misunderstood their behavior as lack of passion for the mission/idea.**

Subject 1-15: **It was difficult to find a primer in where one could establish uninterested from deception or deliberate omission. These gestures were commonly combined with other body language that implied different meanings on initial contact.**

Subject 1-17: **As stated above, I think the initial confusion comes from not being able to interpret clues but wondering if they mean the same as they do in America. One difference is that Iraqis typically use more hand gestures when speaking as part of everyday conversation.**

Subject 1-18: **Some Iraqis are cunning and deceitful**

Subject 1-19: **It's the exact opposite for American nonverbal behavior.**

Subject 1-23: **Only confusing at first. Once you understood the pattern, you could deal with it.**

Subject 1-24: **Took time to remember that if an IA was talking loudly it did not mean they were yelling at one of their Soldiers.**

Subject 1-25: **Kurdish people and Arabs both live in Iraq. They are both Muslims; however the customs between Arabs and Kurds are not the same.**

Subject 2-2: **Afghans will get loud to make almost any point. Not sure if it was important or not.**

Subject 5-6: **Because at times they would appear to be very polite - I don't know that submissive is the word - but in fact they were intending to show authority.**

16. How confident were you that you were interpreting host-nationals' nonverbal behavior correctly? *(Place an X by the one that applies)*

Not at all	**0**
Occasionally	**19**
Very	**20**

17. Please indicate how <u>different</u> the host-nationals' nonverbal behavior was to an American's.

Check only one box for each nonverbal behavior or row indicating how *different* you feel the nonverbal behavior was from an American's.

Nonverbal behavior	Very Different	Somewhat Different	Not Different
Facial expression	**4**	**19**	**15**
Hand and arm gestures	**18**	**17**	**4**
Body posture	**6**	**23**	**10**
How close they stand to others	**27**	**9**	**3**
Eye gaze	**7**	**22**	**10**

Tone of voice	**18**	**15**	**6**
Volume of speech	**22**	**12**	**5**
Interpersonal touching	**31**	**6**	**2**

18. Please indicate how similar you felt the host-national's specific gestures and commands were to an American's**.**

Check only one box for each gesture/command or row.

Gesture/command	Same	Different	I Don't Know
Slow down	**16**	**14**	**8**
Stop!	**23**	**14**	**2**
Come here	**12**	**23**	**4**
Go away/disperse	**13**	**22**	**4**
It's all right/it's safe	**13**	**15**	**11**
I agree	**28**	**11**	**0**
I disagree	**24**	**13**	**2**

19. Do you wish you had specific training in understanding host-national nonverbal behavior before this deployment?

Yes	**32**	No	**7**

Subject 14: **The challenge of NVB was an intricate part of learning about the host-nation personnel and your counterpart.**

Subject 5-6: **I think it would benefit - especially younger Soldiers - for communication in general.**

19b. If yes, what would you have liked to learn? *(Place an X by ALL that apply)*

facial expressions of emotion	**24**	hand gestures	**25**
body posture	**21**	deception behavior	**23**
group dynamics	**24**	power dynamics	**20**
how close people are together and why	**20**	how to identify a leader	**19**
how to detect a threat	**22**	interpersonal touching	**24**
tone of speech	**19**	volume of speech	**20**

20. Do you wish you would receive specific training in understanding host-national behavior before going on future deployments?

Yes	**35**	No	**3**

20b. If yes, what would you like to learn? *(Place an X by ALL that apply)*

facial expressions of emotion	**29**	hand gestures	**29**
body posture	**26**	deception behavior	**30**
group dynamics	**30**	power dynamics	**26**
how close people are together and why	**28**	how to identify a leader	**28**
how to detect a threat	**30**	interpersonal touching	**27**
tone of speech	**23**	volume of speech	**23**

Subject 1-8: **Anything could help a deploying Soldier; we cannot give a Soldier too much information on a country that he is deploying to.**

Subject 1-19: **"Yes" and "no".**

Subject 3-7: **When you go – especially Afghanistan – when you're going into a hostile territory, hostile territory, you want to know as much as possible as they act before going over there. The threat, who's in charge. I'd want to know the whole kit and caboodle.**

21. Did you witness host-national nonverbal behavior that you felt was reflective of *(Place an X by ALL that apply):*

Anger	**33**	Fear	**29**
Deception	**34**	Threat to your unit	**18**
Cooperation	**33**	Sincerity	**34**

Subject 1-8: **I lived with my Iraqis for a year, I witnessed every facet of the emotional spectrum.**

Subject 15: **Bullying.**

22. What nonverbal behavior did you witness most often in host-nationals? *(Place an X by the one that applies)*

hand gestures	**20**	facial expressions	**12**
body postures	**14**	eye gaze	**8**
group behavior	**17**		

22b. Please give specific examples that caught your attention and explain what you think these nonverbal behaviors generally mean: (e.g., a staring gaze = attentiveness, or a staring gaze = hostility, etc.)

Subject 1-1: **Yelling - it was hard to tell when an argument was actually happening. Deference to Seniority - it was amazing to see the change in IA officers in how they cowered around senior officers.**

Subject 1-2: **When less than forthright, or my Iraqis knew something they weren't to talk about openly, they could not maintain my eye contact. Depending on the circumstances, I would call them on it later, and the individual may tell me why he was being secretive. When an individual was captured/detained, he would "shrink" in front of the Iraqi or us. The detainee would slouch, roll his shoulders, look to the ground, and become very submissive. This was tricky to interpret throughout the tour. The person obviously wanted to be released, did not want to pose as a threat, had bad memories of a recent dictator's techniques, but was often lying. We'd look for other behaviors that would indicate his intent.**

Subject 1-4: **The deer in the head lights look on a suspect was "I am ready to die."**

Subject 1-5: **This is hard to articulate. There were many times when I caught stares of hate and others where I caught stares of relief. During detainee interviews, it seemed that individuals who were telling the truth used hand and arm gestures liberally.**

Subject 1-6: **Male hand holding = Friendship**
Avoidance of eye contact = lying/deception

Subject 1-7: **Hand over heart=sincerity**

Subject 1-8: **You could see the micro expressions flash across their faces when asked questions, these usually told you the answer before they did verbally. Also used to identify friend and foe and their willingness to help or do a mission.**

Subject 1-9: **Facial expressions say more than words.**

Subject 1-10: **Hand Gestures = come here, go away, disrespectfully go ahead, you are friendly**
Body postures = laziness and not wanting to do anything, cautious of coalition forces or nervous about enemy forces in the area.
Facial expressions = tells coalition if they are hated or not. Best give away for Arab emotions.
Eye gaze = normally shows interest in activity or a non-friendly stare.

Subject 1-11: **Group of young men= want money, want jobs, exhibit amazement, they usually will move closer to you to observe vehicles and personal equipment.**

Subject 1-12: **staring gaze while standing rigidly = hostility**
darting glances with shoulders shifted away=nervousness/uncertainty (made me suspect something was about to happen "the rabbit was getting ready to run")
relaxed body while watching = curiosity/attentiveness

Subject 1-15: **Hands on hips reflect that they are generally less confident or confused at the time needing direction.**

Subject 1-16: **Lack of motivation/non professional stance for National Police**

Subject 1-17: **Eye gaze = interest/friendliness**
Hand gestures while talking = usually part of everyday conversation/ emphasizes a point
Quietness = conversation is over, may be time to leave.

Subject 1-18: **Agitated states, nervousness, looking away & group dynamics.**

Subject 1-19: **The closer the person is to you, the more likely the person was to ask for a favor he wanted to be kept between the two of you. An increase in the inflection of his voice, more often than not, meant he was trying to save face rather than to win the point.**

Subject 1-23: **The commander would avoid eye contact when he was unsure of whether he was going to be able to fulfill a mission request. Mostly looking down to the ground when doing this.**

Subject 1-24: **The "man kiss from cheek to cheek" the more cheeks that get kissed the closer you are to that person.**

Subject 1-25: **Hand gestures were very common among Muslim men. They generally speak with their hands to emphasize a point. Direct eye contact was very important. This showed a sincere interest with the person who was addressed. Group behavior**

generally revolved around learning something about you. Example, something about the states of your culture

Subject 2-2: **Hand gestures are used for every emotion. Which ones actually mean something? Would have been useful to know in the beginning.**

23. What did you learn about host nationals by means of their nonverbal behavior?

Subject 1-1: **I learned how to tell if my counterparts were sincere in what they were saying.**

Subject 1-2: **It is very much a classed society. Being able to identify who is in charge, especially who the informal leaders are, was hugely helpful. Also understanding when an individual was acting unusual for any reason helped in being proactive. If I saw my Iraqi commander was agitated, I could possibly find out why, help him and he'd feel indebted to me. It also fostered trust in him believing that my agenda was his agenda.**

Subject 1-3: **Mainly that their gestures/expressions/posture/etc. are comparable to our own and generally mean the same thing, with some exceptions, of course.**

Subject 1-4: **Friend or foe. Cooperation or antagonize.**

Subject 1-5: **Most Iraqis wear their emotions on their sleeves.**

Subject 1-6: **It was easy to recognize who cared for someone or held someone in high regard.**

Subject 1-7: **Arabs are too dramatic. If they just state what they want without their song and dance, then they could accomplish their goals more quickly than what they do now.**

Subject 1-8: **They are just like us in their anger and joy.**

Subject 1-9: **The degree of cooperation you will receive.**

Subject 1-10: **Much of the nonverbal behavior means more than verbal. It is also very vital when establishing relationships with counterparts.**

Subject 1-11: **They are very inquisitive and envious of our technology, equipment, and apparent wealth. They want what we have - bottom line. For threatening actions, they will happen without warning and behind obstacles.**

Subject 1-12: **Generally, I believe I could get a sense as to whether the "mood" was hostile, neutral, or friendly more by the nonverbal than by the actual words.**

Subject 1-14: **The same behavior can mean different things depending on the situation/time/person(s)**

Subject 1-15: **The learning curve is more expedient if contact is constant and directly reflects in predicting the mood or future actions or where conversation is going or importance.**

Subject 1-17: **Most Iraqis are very friendly and demonstrative during conversations to Americans, but not as much when talking to other Iraqis.**

Subject 1-18: **They are unpredictable.**

Subject 1-19: **Saving face, or the public perception of strength was decidedly important.**

Subject 1-20: **There were very affectionate and compassionate.**

Subject 1-23: **That they communicate a lot of information if you pick up on the cues. You could almost always predict their response to requests by what they did not what they said.**

Subject 1-25: **Placing the right hand over the heart indicated a sincere interest in direct dialogue with the person being spoken to. When there is great respect for you, the hospitality is more, that is they will offer you to sit by them, or get you something to drink without you asking.**

Subject 2-2: **Touching, specifically hand holding is a sign of respect.**

24. What did you find most confusing about their nonverbal behavior?

Subject 1-1: **Hand gestures. In Germany, my landlord and I communicated a lot with hand gestures and drawings. This didn't work with the IA.**

Subject 1-2: **This is a hard question to answer following the tour. I'm sure a whole bunch of things upon arrival, but it's important that individuals realize this is indeed a foreign society in every sense of the word, and that much of the understanding simply comes with time and maintaining an open mind.**

Subject 1-4: **The ungrateful nature.**

Subject 1-6: **The tone/volume of language they used during conversations.**

Subject 1-8: **Not much.**

Subject 1-9: **Nothing.**

Subject 1-10: **I wasn't really confused with nonverbal behavior, but there were some things I didn't allow, mainly homosexual type of behavior from Iraqi contractors.**

Subject 1-11: **The fact that when they touch an object on your person like your knee pads or eye protection it also means they want it for themselves. You have to be careful if they bring you a present because they will want a piece of your gear permanently.**

Subject 1-12: **The longer deployed the less confusing the behavior was. The key was to have someone able to help explain the cues and to not have to decipher the nonverbal alone. That shortened the learning process greatly and increased my alleviated my discomfort.**

Subject 1-13: **Inconsistence with gestures versus the spoken words.**

Subject 1-14: **Understanding the behavior. Understanding the intent behind the behavior.**

Subject 1-15: **I did not understand the closeness or group dynamics concerning host nationals initially. If you are able to get in to these groups to mingle and maintain presence you will indeed learn very quickly. From fire hose so to speak.**

Subject 1-16: **Knowing what specific gesture meant.**

Subject 1-17: **Initially, it is hard to determine if they really want the Americans/Coalition Forces in Iraq. But after a while it became easier to identify who wasn't friendly toward us.**

Subject 1-18: **Speed & pitch of their voice.**

Subject 1-19: **At first, I thought the more effeminate guys were making passes.**

Subject 1-20: **Nothing really.**

Subject 1-23: **The only confusing point was the time it took to decipher it.**

Subject 1-25: **Most nonverbal behavior was not confusing once you were used to it. Generally speaking most nonverbal behavior could be interpreted by most Americans through body language.**

Subject 2-2: **Again, Afghans are very emotional. Which gestures actually have meaning and which are just for show.**

25. How could nonverbal behavior training help you do your job better?

Subject 1-1: **I've heard that 80-90% of communication is nonverbal. The remaining 10-20% is being filtered by an interpreter. It is amazing that anything is successfully communicated between us.**

Subject 1-2: **Simply understanding the basics would have allowed me to be that much more effective from the start. Knowing that Iraqis are emotional, loud, and everything sounds like an argument would be helpful.**

Man kissing is part of the job, get used to it, and use it to feel more comfortable about one's position/inclusion into the group.

Iraqis also like to show off for an American officer, especially one who has authority or influence. This may affect their posture, interaction with others, or where they position themselves.

Subject 1-3: **This job is all about communication. Obviously, anything that helps aid communication and understanding would be beneficial.**

Subject 1-4: **90% of all communication is nonverbal. It would help break the ice.**

Subject 1-5: **Good interpersonal communication skills are keys to success. Iraqis' (good guys and bad) place a high value on personal relationships and mutual overt respect.**

Subject 1-6: **Training of that sort could have allowed for an easier transition into my job in theatre.**

Subject 1-8: **It would just give the Soldier a heads up as to what he may or may not see once he arrives in theater. All people are different, each Iraqi has his or her own nonverbal gestures that could help the Soldier if they are paying attention and have a baseline of what to expect from a certain group of people.**

Subject 1-10: **Prepares the individual to better cope with some gestures. It will also increase the chances of befriending locals and establishing trustworthy rapport.**

Subject 1-11: **Understanding their desire to be like us would have helped me to st??? My mentoring to make them more self-reliant with the end result being they took more of a responsibility in accomplishing the tasks we presented to them.**

Subject 1-12: **As alluded to in #24, the better prepared a Soldier is for a situation to "read" his environment and to conduct a risk analysis is better for him and for those around him, civilians included. A quality preview of what to expect in nonverbal behavior will give a great headstart in preparation for the battlefield mindset.**

Subject 1-13: **Help one follow a conversation when one loses the trail on the spoken words. You'd still be able to make an educated guess as to what everyone was talking about.**

Subject 1-14: **I do not believe it will help, at best it might provide a general overview on the subject.**

Subject 1-15: **Interpreting body language was essential and critical in achieving more expedient understanding and interpretation of host nationals. The interpretation of body language will additionally bridge the gap between the deficiencies of the translators that were misinterpreting at times. Most interpreters in Baghdad could not translate as well as needed and a lot of commanders/leaders did not have patience to incorporate body language while interpreter engaged in conversation with host-nationals.**

Subject 1-16: **Not understanding the language the gestures would give a better indicator of truthfulness, knowledge the person has, etc.**

Subject 1-17: **If training was such that Soldiers could be more confident in analyzing nonverbal gestures when they arrive in Iraq, then of course that would make the job easier in the first few months. It would also allow better and quicker relationship building with counterparts.**

Subject 1-18: **Role playing with actual natives recently removed from Iraq.**

Subject 1-19: **Mitigate confusion.**

Subject 1-20: **By allowing you to understand the culture better.**

Subject 1-23: **It would help in focusing your efforts to achieve mission success for both the host-national and the US forces. The learning curve in deciphering the body language would be shortened with pre-deployment training.**

Subject 1-25: **The training could assist in detecting sincere interest, or possible deception within the host national's discussion.**

Subject 2-1: **If I could determine how reliable information was or a person's intent it would be invaluable being on patrol.**

Subject 2-2: **Would have known which forms of non-verbal communication actually mean something.**

26. What do you think would be the most effective way to learn to interpret nonverbal behavior of host-nationals? *(Rank order your responses by putting a 1, 2, or 3 indicating your highest three choices with "1" being most important)*

NVB Category Rank->	1	2	3	4	5	6
Real life video	**18**	**7**	**2**	**1**		
Video with trained actors	**2**	**4**	**3**	**2**		
Photographs	**2**	**2**	**4**		**3**	**3**
Soldier testimonials	**2**	**10**	**8**			**2**
Subject matter experts	**8**	**2**	**10**	**4**		
Research on the subject		**4**	**2**		**4**	**1**

The following items address your experience with understanding host-nationals' nonverbal behavior based on all your prior deployments. For each item, circle the number that best reflects your level of agreement with that statement.

5 = Strongly Agree 4 = Somewhat Agree 3 = Neither Agree nor Disagree 2 = Somewhat Disagree 1 = Strongly Disagree	Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree
1. Training in interpreting nonverbal behavior would be useful to Soldiers prior to a first deployment ……	**2**			**2**	**34**
2. Training in interpreting nonverbal behavior would be useful to Soldiers before any deployment……	**2**	**1**	**3**	**5**	**27**
3. Training in interpreting nonverbal behavior should take no more than 8 hours….	**6**	**3**	**5**	**8**	**16**
4. Training in interpreting nonverbal behavior should only be done with officers or senior NCOs……	**25**	**6**	**1**	**2**	**4**
5. Training in interpreting nonverbal behavior is best accomplished through a classroom setting…….	**6**	**14**	**9**	**7**	**2**
6. Individual, computer-based training in interpreting nonverbal behavior would be effective.....	**8**	**8**	**9**	**11**	**2**
7. I felt competent at interpreting the nonverbal behavior of a host-national before my first deployment……..	**12**	**14**	**7**	**5**	
8. People of the same culture use the same nonverbal behaviors	**10**	**13**	**4**	**9**	**2**
9. There should be different proficiency levels of courses for interpreting nonverbal behavior…...	**1**	**4**	**15**	**12**	**6**
10. Being able to interpret host-national facial expressions would help me the most for future deployments.....		**5**	**11**	**15**	**6**
11. Being able to interpret host-national hand and arm gestures would help me the most for future deployments.....		**3**	**11**	**16**	**8**
12. Being able to interpret threat behaviors would help me the most for future deployments……		**3**		**9**	**26**
13. Being able to interpret deception behaviors would help me the most for future deployments…..		**3**	**1**	**13**	**21**

14.	Being able to interpret nonverbal behaviors at a distance over 20 feet would help me the most for future deployments		3	7	11	16
15.	I'd be willing to spend 8 hours learning to interpret host-national nonverbal behaviors.....	3	2	2	10	21
16.	It would help to learn how to imitate host-national nonverbal behaviors so Soldiers could use gestures to command or request that host-nationals take certain actions.	2		3	10	23
17.	I think nonverbal interpretive skills could make the difference between life and death in some mission contexts.....	2		2	9	25

If you have any further comments regarding what should be included in the training, what form and how long the training should be, when the training should be given and/or any other comments regarding interpreting nonverbal communication training please provide that information here.

The content of the training should include:

Subject 1-1: **Hand Gestures, voice level, facial expressions, group dynamics, leader dynamics**
Subject 1-8: **Playing poker, watching a game and playing it, Poker can help develop the ability to make a conscious and then transition to an unconscious ability to read people's faces. Card players use this skill in their everyday lives and we as Soldiers need to mimic that skill set.**
Subject 1-18: **Critical phrases & commands.**
Subject 1-19: **Vignettes, videos, and lectures.**
Subject 1-25: **The ability to read body language. Knowing the customs of the region you are going to and how they relate to body language.**

The best way to train interpreting nonverbal communication behaviors would be to:

Subject 1-1: **Real Iraqis fresh from Iraq and not on that has been living in Michigan for the last 25 years.**
Subject 1-2: **Personnel who have been there recently, and who dealt extensively with local nationals. An exile, or immigrant, who has not seen the home country in 30 or more years, will not be effective. One only has to see how much our society has changed in that amount of time to understand.**
Subject 1-4: **I think that you should get some TV shows have them translated and have a cultural person there to explain the actions. Do not re-invent the wheel. There are plenty of resources out there on the open air waves that can show the difference in the culture.**
Subject 1-7: **Bring an Iraqi or Afghan immigrant into the classroom where the Soldiers learn.**
Subject 1-18: **Role playing (as mentioned above)**
Subject 1-19: **Videos of local nationals using them.**
Subject 2-2: **Use host nation civilians contracted who just left the country recently. I have had training from LN's who had been gone from the country for over 20 years. It is not effective. Also, Soldiers just returning from theatre who worked in civil affairs missions would be good but need to be vetted to ensure they are teaching out the proper methods.**

The best time to provide nonverbal communication training would be:

Subject 1-1: **Between final MRX and deployment, so it is still fresh.**
Subject 1-2: **Some classroom but mostly in interaction during STXs, and role playing scenarios.**
Subject 1-4: **Early and often then let them integrate it in throughout the training.**
Subject 1-6: **No more than 2 hours of power point or video based instruction.**
Subject 1-7: **A week before being deployed or just before the Main Readiness Exercise prior to deployment.**
Subject 1-8: **Kuwait**
Subject 1-12: **When the Soldier is refreshed and rested, when the mind is alert, not at the end of a long day of training or squeezing it in before breakfast.**
Subject 1-15: **It would be extremely beneficial to not focus on but one body language but to understand how many of these indicators of emotion or action may be taking place in combination with one or more movements from head to toe at the same time. Most cases I have experienced have transpired in such a manner.**
Subject 1-18: **Just prior to deployment.**
Subject 1-19: **First day, right after some form of cultural awareness training.**
Subject 1-25: **For Soldiers and civilians prior to a first deployment. 2nd and consecutive deployments would not require so much in depth training.**
Subject 2-2: **Post mobilization.**

Other Comments:

Subject 5-1: **This is a really important subject, I hope you know that.**
Subject 5-4: **We were in Bahrain and we were in a house with a family and it was weird because it was just us guys. One of the guys their behavior was almost gay he tried to hold my hand and it was very uncomfortable. We had an interpreter so communication was really slow. It was great learning different cultures. It was a very interesting experience overall. I even tried on one of their garbs.**

Sitting down with different groups of men and try to break that language barrier. The guy was bigger than me <when he held my hand> and I accommodated him. I knew he was heterosexual. When we sat down he sat really close to me. There were really, really friendly. They didn't care about their proximity to me. They invade that bubble all the time and it was hard getting used to. If I had rejected their advances it would have hindered our communication and trust. It would have taken longer to build friendships.
Subject 5-6: **When we are gesturing "come here" we would do it with our palm up and moving our fingers towards ourselves. Whereas Koreans would gesture with their palm down which Americans would interpret as "go away". It used to mess up traffic. Specifically, I was there when 9/11 occurred and we went immediately into emergency lockdown… we were inspecting every single vehicle and there was some misinterpretation. Just slowed it down.**

I think interpretation of nonverbal behaviors is tough for young Soldiers on their first deployment in Afghanistan, Iraq, and in Korea. They're fairly young, out of high-school. Young guys first time away from home in their first country, forget the fact that we're there to serve them and augment them and there should be a spirit of cooperation and not of cowboy bravado. I think training in interpretation of <foreigner> nonverbal behavior would be very helpful. It's an excellent concept, I think it's a great idea. As soon as you get off the airplane, you get on a bus, and wait for processing to get to your unit. When you're on your bus trip - which can be 30 minutes to 3 hours - you get this brief orientation. I think it would be better if

the Soldier received an orientation briefing once they're assigned to their unit and have senior enlisted person within their unit be responsible for spinning them up. During processing with their unit they need an orientation class with their unit.

Appendix C

An Example of Culture-specific NVB Issues: Iraq and the Arab World

Iraq is an example of a Middle Eastern country where Soldiers can benefit from learning culture-specific NVB decoding skills. There is very little validated research on NVB specific to Iraq, but some work has been done on the Middle Eastern Arab world's NVB. Feghali (1997) pointed out that some of that research was contradictory and that some myths and incorrect ideas were still being quoted in the literature. There is even confusion about what the term "Arab" means.

There is general consensus among scholars, in a lineage including Hall, that Arabs generally make more direct and sustained eye contact than Americans in order to express interest and ascertain whether the communication partner is trustworthy. Arabs also touch more in same-sex contexts but have taboos against cross-gender touch, except with children or when married couples are private and at home (Feghali, 1997). Arab men are more likely to have direct body orientation and stand in close proximity, chest to chest, while communicating. A study of Iraqi, Argentinean, and Russian students in Israel found that Iraqis had the most extreme proxemics in terms of using the least interpersonal distance of any of the groups. This was so whether the Iraqis were engaged with strangers or people they knew (Lomranz, 1976, as cited in Feghali). Americans have reported feeling very crowded by Iraqi proxemics and bothered by Iraqi gaze practices. In fact, these behaviors have provoked acts of hostility by Soldiers, who felt aggressed by the Iraqis (eCrossCulture video archive). There is precedence for this reaction, as over a half-century of research has shown that staring is a dominance behavior (Ellyson & Dovidio, 1985) and that it tends to cause arousal, e.g., an increased galvanic skin response (Nichols & Champness, 1971). This reveals a need to train Soldiers in emotional regulation as part of their general pre-deployment cross-cultural training.

There are many anecdotal differences between Arab NVB and American NVB, but they are not the product of validated studies. For instance, in marketing his popular book, *The power of nonverbal communication* (2005), Calero wrote that his main source of Arab nonverbal communication information was a Westerner who had lived extensively in the Arab world. Nierenberg and Calero also wrote a popular book on NVB, entitled *How to read a person like a book.* In it, they claim that their book has "introduced a new discipline and a new awareness…." Further, they claim that their book "presents a system for reading gestures that crosses all cultures and generations" (2001, p. vii). That claim ignores more than a century of scientific research. The business world also has anecdotal information available to those who seek (unvalidated) tips on avoiding *faux pas* while doing business internationally. For instance, the Arabian Business and Cultural Guide is for sale on-line and has a section on nonverbal communication (retrieved from www.traders.city.com/abcg/).

In the realm of paralinguistics, there are also many cross-cultural differences between Americans and Iraqis. Iraqis and other members of Arab societies tend to speak loudly and at "a decibel level considered aggressive, objectionable and even obnoxious by North Americans. To

Arabs loudness connotes strength and sincerity, a soft one implies weakness or even deviousness" (Gudykunst & Kim, 1984, p. 161, as cited in Feghali, 1997, p. 368). The higher pitch Arabs usually use is also sometimes interpreted as threatening or aggressive (Safadi & Valentine, 1990).

Arabic speakers, including Iraqis, have verbal communication styles that are quite different from those of Americans. These styles include rhetorical elaborateness, repetition, and indirectness (Gudykunst & Ting-Toomey, 1988, as cited in Feghali, p. 357). Indirectness can come across to Americans as an attempt to hide something or be evasive. The rhetorical aspects of Iraqi self-expression include exaggeration and assertion, both of which can alienate American Soldiers (Patai, 1983, as cited in Feghali, p. 359). This is an example of the kinds of issues that will need to be considered the country chosen during a Phase II endeavor. Issues specific to the country of deployment can be embedded in training.

Appendix D

Details about the Seven Proposed Training Modules

MODULE 1: INTRODUCTION TO NONVERBAL BEHAVIOR

Training Audience:

This module is important for all Soldiers who will come in contact with host nationals, multinational forces, and foreign government and nongovernmental agencies.

Purpose:

What is communication and what is nonverbal communication? It is the "*Why is all this important*?" This module introduces the concept and world of NVB, its complexity and its power in communication. Video and photographs present how NVB: 1) is often overlooked, especially in high-stakes, ambiguous situations involving credibility assessment, and 2) can be correlated with mission success or disastrous outcomes. Specific attention is paid to propensity assessment and enhancement. Perceptual and in-group biases are introduced in the context of how they can lead to inaccurate NVB decoding. Active listening and observation are taught as means of focusing attention on NVB cues.

Goals and Outcomes: The Soldier will:

- have increased propensity to engage in nonverbal behavior interpretation
- engage in active listening and observation for NVB cues
- understand the impact of personal biases on NVB accuracy
- gain insights and knowledge into the utility and function of NVB
- understand important concepts related to NVB
- become aware of what NVB they've noticed and what they've missed

Universal or culture specific NVB

This module is universal though video footage can be changed to fit country of deployment in Phase III.

Validation for Module No new validation study needed for module development.

Estimated duration: 1 hour

Recommended teaching strategies:

What follows are only strategy suggestions. eCrossCulture will confer and vet the teaching curriculum with ARI and Soldiers to provide a product that is useful, feasible, and effective both in school-house and in stand-alone use.

The introduction module will be a combination of motivating video of experts and Soldiers talking about NVB and its utility, with stories from the field of how it can lead to mission success or its non-use can lead to disaster and ultimately save lives. Practice exercises on the aforementioned outcomes will be included along with Go/No Go assessment followed by more practice and both in-classroom and on-line coaching.

Video containing Soldier testimonials or situations will change depending on various factors. For example, an instructor may assign a specific course for infantrymen; the video will be tailored to depict Soldier testimonials of appropriate rank and intended missions.

MODULE 2: FACIAL EXPRESSIONS OF EMOTION

Training Audience:

This module is important for all Soldiers who will come in contact with host nationals, multinational forces, and foreign government and nongovernmental agencies.

Purpose:

The purpose of this module is to increase understanding and knowledge of the form and function of facial expression of emotion, and to improve skills in reading macro, micro, and subtle facial expressions of emotion. Soldiers will learn to decode *any* facial expression of emotion displayed by people from a wide range of ethnic and cultural backgrounds, and then be exposed to faces from specific geographic and ethnic regions, depending on deployment. Soldiers will also learn about emotions – what triggers them, their unique physiological signatures, and the behaviors that are primed when they are elicited.

Goals and Outcomes: The Soldier will:

- develop their knowledge about emotions, as well as their antecedents, and consequences
- improve their skills at reading macro, micro, and subtle facial expressions of emotion
- improve their skills related to what to do when emotions are detected, whether in the context of establishing rapport, gaining trust, assessing credibility, evaluating truthfulness, eliciting information, or detecting intent

Universal or culture specific NVB

This module is universal though video footage can be changed to fit country of deployment in Phase III.

Validation for Module No new validation study needed for module development. Some research is needed to develop facial stimuli of specific cultural groups that will be determined in conjunction with ARI and the sponsoring agency.

Estimated duration: 4 hours

Recommended teaching strategies:

Training will include several sections, involving an introduction to facial behaviors in general (this will be important for Soldiers to distinguish between noise and true signals); what is an emotion, its form and function; and the form and function of facial expressions of emotion. The curriculum will instruct Soldiers concerning the universality of facial expressions of emotion, and introduce the distinctions between macro, micro, and subtle facial expressions. The curriculum will define categories and utility of training each. The curriculum will be customizable to the three units (macro, micro, and subtle), and will provide rationales for what each unit teachers and why Soldiers benefit from them. Soldiers will also be able to learn how the universal expressions look on culture and ethnicity-specific faces. Throughout the module, Soldiers' learning will be reinforced with the importance of these NVB through examples and Soldier testimonials or situations that will change depending on various factors. A sample outline of this module will look like the following. The exact outline will be determined through consultation with ARI.

1. Show two examples of the importance of reading NVB accurately, focusing on facial expressions of emotion, one with disastrous consequences, the other with good consequences
    a. Introduce training on facial expressions of emotion, with instruction about why they are universal

Macro-expressions

    b. Give pre-test of macro-expression recognition ability in standard context. Give feedback on scores. Provide instruction on and practice with macro-expressions. Give post-test of macro-expression recognition ability in standard context. Give feedback. Demonstrate improvement.
    c. Provide many examples and practice of macro-expressions in real-life situations. Give test of macro-expressions in real-life situations. Demonstrate improvement.

Micro-expressions

    d. Introduce concept of micro-expressions. Signs of concealed or repressed emotions. Give pre-test of micro-expression recognition ability in standard context. Give feedback on scores. Provide practice on recognizing micro-expressions. Give post-test of micro-expression recognition ability in standard context. Give feedback. Demonstrate improvement.
    e. Provide many examples and practice of micro-expressions in real-life situations. Give test of micro-expressions in real-life situations. Demonstrate improvement.

Subtle expressions

    f. Introduce concept of subtle expressions. Signs of weak or concealed emotions. Give pre-test of subtle expression recognition ability in standard context. Give feedback on scores. Provide practice on recognizing subtle expressions. Give

post-test of subtle expression recognition ability in standard context. Give feedback. Demonstrate improvement.

g. Provide many examples and practice of subtle expressions in real-life situations. Give test of subtle expressions in real-life situations. Demonstrate improvement.

Situational

h. Situation 1
    i. Example 1
        1. Give the situation, show the behavior
        2. Ask user to identify the emotion in the behavior
            a. If correct, ask user to choose behavioral alternatives
            b. If incorrect, instruct user to see again or practice
    ii. Example 2 same as above
    iii. Example 3, etc.
i. Situation 2 same as above
j. Situation 3, etc.

MODULE 3: GESTURES AND EMBLEMATIC GESTURES

Training Audience:

This module is important for all Soldiers who will come in contact with host nationals, multinational forces, and foreign government and nongovernmental agencies.

Purpose:

The purpose of this module is to increase understanding and knowledge of the form and function of gestures, and to improve skills in reading culture-specific emblematic gestures. Soldiers will learn to differentiate between gestures used for speech illustration and regulation, body manipulation, and emblematic messages. They will also learn to decode emblematic gestures of a specific cultural group, depending on deployment. They will learn to evaluate emblematic gestures in relation to credibility assessment and safety.

Goals and Outcomes: The Soldier will:

- increase their knowledge about gestures and their various functions
- improve their skills at differentiating different types of gestures
- improve their skills at decoding emblematic gestures
- improve their skills as to what to do when emblems are detected, whether in the context of establishing rapport, gaining trust, assessing credibility, evaluating truthfulness, eliciting information, or detecting intent

Universal or culture specific NVB

This module is universal though video footage can be changed to fit country of deployment in Phase III.

Validation for Module New research is required to validate the gestural emblem vocabularies of specific cultural groups specified by ARI and the sponsoring agency.

Estimated duration: 2 hours

Recommended teaching strategies:

Training will include several sections, involving an introduction to the world of gestures, and differentiating among the different functions of gestures in order to distinguish between noise and true signals. The curriculum will instruct Soldiers concerning the universality of the function of gestures, and the cultural specificity of specific emblematic gestures. The curriculum will provide specific instruction on the emblematic gestures of identified cultural groups. Throughout the module Soldiers will be reinforced with the importance of these NVB cues through examples and Soldier testimonials or situations that will change depending on various factors. A sample outline of this module will look like the following. The exact outline will be determined through consultation with ARI and the sponsoring agency.

Unit 1: The World of Gestures:

Introduction to the world of gestures, body postures
Examples of decoding different types of gestures accurately
- Importance of emotion regulation and perceptual bias

The function of gestures
- Speech illustration
- Conversation regulation
- Body manipulation
- Affective orientation
- Emblematic messages

Unit 2: Emblematic Gesture Training:

- Show two examples of the importance of reading NVB by accurately focusing on emblematic gestures, one with disastrous consequences, the other with good consequences
- Introduce training on emblems, with instruction about why they are culture-specific.

Macro-gestures of a specific culture

- Give pre-test of macro-gesture recognition ability in standard context. (Macro-gestures are gestures of hands or arms that individuals use to move objects or gesture expressively. Micro-gestures, in contrast, are small-amplitude gestures often restricted to fingers, that allow fast, quick movements in small spaces. The training emphasis is on macro-gestures). Give feedback on scores. Provide instruction on macro-gestures. Provide practice on recognizing macro-gestures.

Give post-test of macro-gesture recognition ability in standard context. Give feedback. Demonstrate improvement.

- Provide many examples and practice of macro-gestures in real-life situations. Give test of macro-gestures in real-life situations. Demonstrate improvement.

Macro-gestures of a different specific culture visibly similar to the first

- Give pre-test of macro-gesture recognition ability in standard context. Give feedback on scores. Provide instruction on macro-gestures. Provide practice on recognizing macro-gestures. Give post-test of macro-gesture recognition ability in standard context. Give feedback. Demonstrate improvement.
- Provide many examples and practice of macro-gestures in real-life situations. Give test of macro-gestures in real-life situations. Demonstrate improvement.

Compare and contrast

- Give test of real world videos of emblematic gestures of one of the two cultural groups trained. Ask Soldier to identify the cultural group and the symbolic meaning. Provide practice on this. Give post-test. Demonstrate improvement.

Situational

- Situation 1
  - Example 1: Give the situation, show the behavior. Ask user to identify the emotion in the behavior. If correct, ask Soldier to choose behavioral alternatives. If incorrect, instruct Soldier to see again or practice.
  - Examples 2 and 3, same as above
- Situation 2 and 3, same as above

MODULE 4: CHANGE DETECTION

Training Audience: This training will be oriented towards Soldiers participating in close personal interactions (such as negotiations or relationship building), foot patrols, staffing checkpoints, and driving in convoys. The two units from this module will adapt to the student.

Purpose:

This module will teach Soldiers how to "baseline" a person or a scene/setting and identify and interpret salient changes. Many times mission success is dependent on understanding host nationals' behaviors and cultural norms. The skill of baselining can help keep Soldiers safe, as a change from the baseline may indicate threat or danger.

Goals and Outcomes: The Soldier will:

- be able to assess a street scene and detect salient changes over time
- develop expectancies about what is normative for a person, place, or context, and what is not, especially in a cross-cultural setting
- learn to ignore the background "noise" or visual and auditory distractions that do not need much attention and focus on what does merit attention
- become aware of change blindness and change blindness
- analyze a scene both for foreground and background

- understand and use implicit change detection and how "gut feelings" may convey important information
- regulate emotions while evaluating change
- detect, identify, localize, and interpret change in people or situations

Universal or culture specific NVB

This module is universal though video footage can be changed to fit country of deployment in Phase III.

Validation for Module No new validation study needed for module development.

Estimated Duration: 3 hours

Recommended Teaching Strategies:

Direct teaching video in the detection of overt visual change and training to detect change that does not necessarily become conscious will be provided by Dr. Matsumoto (for people) and Dr. Rensink (for scenes and implicit change detection). A four-step process on how to baseline a pool of visual information, look for change, and dissolve attention will be outline followed by practice and feedback. Photo and video training in foreground-dominant analysis and background-dominant analysis will be followed by training in baselining for what is normative and what seems atypical. Scene scanning practice with selective focused attention targets will be coupled with teaching about awareness of center versus periphery in scene scanning habits. Exercises with increased visual "noise" to challenge the Soldier with more difficult search and detect activities will be coupled with coaching and feedback based on individual success rates. A Go/No Go summative assessment will be given at the end of the module.

<u>Unit 1: Scene Change Detection</u>

This unit will be tailored for Soldiers involved with scanning and surveillance, crowd control, and defusing situations.

<u>Unit 2: NVB Change Detection</u>

This unit will be tailored for Soldiers involved with interpersonal situations such as: building rapport, negotiation, interviewing, and interrogation.

MODULE 5: NVB AT A DISTANCE

Training Audience: This training will be oriented towards Soldiers participating in foot patrols, controlling access points, and driving in convoys.

Prerequisite: Change Detection Module, Facial Expression of Emotion Module: Macro Unit, and Gestures Module

Purpose:

This module will teach Soldiers how to apply focused attention strategies to NVB cues and functions at distances over 20 feet. This is important to Soldier safety, patrols, and crowd assessment and control.

Goals and Outcomes: The Soldier will:

- apply focused attention strategies to NVB cues, such as hand gestures, body posture, kinesics, vocalics, haptics, and use of architecture or props that can provide meaning to what is happening in-theatre in scenes beyond 20 feet.
- be aware of and able to use strategies to make meaning of what is going on in a group of host-nationals in his or her field of vision
- gauge whether groups are behaviorally benign or dangerous
- gauge whether a crowd is merely a physical crowd or a crowd united by a common interest
- use distance scene-scanning abilities
- identify persons of interest
- have the motivation to use these skills in-theatre
- be able to baseline a crowd, taking note of the presence of sound/noise, objects, crowd movement and behavior
- understand and practice emotional regulation

Universal or culture specific NVB

This module is universal, though video footage can be changed to fit country of deployment in Phase III.

Validation for Module No new validation study needed for module development.

Estimated Duration: 2 hours

Recommended Teaching Strategies:

This module should begin with a pretest, followed by direct teaching from an NVB expert and practice exercises using photographs of scenes and video from the country of deployment. Soldiers should receive training that depicting relevant situations with meaningful interpersonal interactions and depicting genuine stakes

for those involved. At a distance scenes where emotional regulation is crucial to mission success will be embedded. Soldiers will practice and be evaluated on their analysis of scenes, parts of scenes, touch, movement, posture, gesture, and voice.

MODULE 6: AGGRESSION DETECTION

Training Audience: This training is oriented towards Soldiers involved with crowd control, staffing checkpoints, interpersonal dealings with the local populace, protection services, interviews and interrogations.

Prerequisites: Module 2: Facial Expressions of Emotion (Macro, Micro, and Subtle Units) and Module 4: Change Detection Unit 2: NVB Change Detection

Purpose:

Soldiers will benefit from and both American and host nationals' lives can be saved by Soldiers who are able to detect incipient and active aggression and distinguish it from anger. Training will help Soldiers respond to upset host nationals to deescalate emotion and assist in security and stability operations.

Goals and Outcomes: The Soldier will:

- detect and differentiate among anger, contempt, disgust, and aggression cues as quickly as possible
- make educated guesses about what facial displays of emotion and other cues are likely to lead to violent behavior
- be able to assess mental state
- be able to assess dangerous intent
- conduct interviews and interrogations more effectively
- understand cultural display rules that can affect cues
- use active observation
- practice emotional regulation

Universal or culture specific NVB

This module is universal though video footage can be changed to fit country of deployment in Phase III. Culture-specific faces will be used in Phase II.

Validation for Module No new validation study needed for module development. Some research may be necessary to develop ethnicity-specific facial examples of the exemplars for culture-specific training.

Estimated Duration: 2 – 4 hours

Recommended Teaching Strategies:

After direct teaching, Soldiers will participate in multiple exercises in identifying anger, disgust, and contempt in photo and video scenes; practice identifying cues (from voice to breathing and facial color changes to discrete facial muscle movements) that express anger. Soldiers will practice through photos and video to differentiate comparative photos and video of incipient or active aggression that comes from losing control ("hot aggression") and aggression that is premeditated ("cold"). An advanced chapter in this module will deal with using aggression detection during interviews and interrogations. Not all Soldiers taking this module will access this chapter. Formative and summative assessments ending with a Go/No Go score will be given.

MODULE 7: DECEPTION DETECTION

Training Audience: This training will be oriented towards Soldiers participating in close personal interactions (such as negotiations, interrogations, or relationship building) and staffing checkpoints.

Prerequisites: Soldiers must take Modules 1, 2 and 3 (Introduction to NVB, Facial Expression of Emotion, and Gestures) before taking this module.

Purpose:

Soldiers will benefit from being able to assess veracity, attempt to detect deception, and use information on incongruent verbal and nonverbal behavior or deception-related cues to assess both other Soldiers and host nationals in a variety of situations and cultural contexts. There are no validated universal deception cues, but the Soldier can use "hot spot" detection, ongoing questioning and observation, and other cues to look for possible signs of deception.

Goals and Outcomes: The Soldier will:

- be aware of cues associated with deception, such as micro expressions of emotion
- recognize "hot spots" where there are contradictory cues, words not matching nonverbal cues, or cues out of sync with context
- understand common existing deception myths (false, stereotyped cues)
- understand the importance of not privileging the verbal over the nonverbal in situations of incongruence or inconsistency
- know nonverbal cues commonly associated with deception in a specific cultural context (e.g., Iraq)
- be able to use nonverbal cues (e.g., reduced hand motions, reduced facial expression, vocalic changes) to evaluate for deception
- be able to "baseline" for an individual's changes over the course of a conversation
- understand the limits of deception detection with NVB cues alone

- practice emotional regulation

Universal or culture specific NVB

This module is universal though video footage can be changed to fit country of deployment in Phase III. Culture-specific faces will be used in Phase II.

Validation for Module: No new validation study needed for module development.

Estimated Duration: 2 hours if Soldiers have completed Modules 1, 2, and 3

Recommended Teaching Strategies:

This module involves the analysis of video for deception cues and verbal-nonverbal incongruence. Soldiers will view various scenarios, some deceptive and some not, and learn a healthy humility (e.g., that one cannot make educated guesses about deception and come to a final conclusion based solely on NVB cues alone.) Vocalics will be analyzed for deception cues that are separate from semantic content. Leakage of emotion and micro-emotion will be revisited in the context of understanding the reliable facial muscles and decoding contradictory or ambivalent emotion cues that are correlated with deception. Finally, deception through hiding things and trickery will be trained and tested so that Soldiers improve skills in scanning and visually deceptive behavior. As in all other modules, pre-evaluation, formative, and summative assessment with feedback will be seamlessly woven into the curriculum. A particular focus will be the improvement in skills related to active listening and observation when using interpreters.